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Kaiser Wilhelm of Germany just stepping into his 70-h.p. Fiat at the St. Pauli Bridge in Hamburg, during his automobile trip from Hanover to that city.

PASSING EVENTS.

The Markyate Sentence.

At the Hertz Assizes on Monday last, Cornalbas, the driver of the motor car belonging to Mr. Hildebrand Harmsworth which knocked down and killed a child at Markyate in April last, was sentenced to six months hard labour. On the whole we are satisfied with the sentence. It is severe enough to act as a deterrent to *porcus viarum* (the road hog), and it is not so severe as to savour of malice or vindictiveness. Whether the conviction is defensible from the strictly legal and technical point of view may be an open question, and we think that one leading daily goes too far in declaring roundly that Cornalbas was *certainly* driving above the 20-mile limit. This was far from being *proved* in evidence at all, and the judge plainly said he would refrain from putting it to the jury. But that Cornalbas was morally guilty of criminal negligence in driving, most people will agree, and that was the view taken by the jury. It is the effect produced on the public mind and the automobile movement by the conviction and the sentence that chiefly matter, and there can be no doubt that both these effects are salutary. Had Cornalbas been acquitted (as he conceivably might have been) on a purely technical point, the result would have been lamentable. Large sections of the populace still hostile to automobilism would have lashed themselves into a perfect frenzy, and nearly every motor car owner in the country would more or less directly have suffered in consequence. Had the judge, on the other hand, passed what lawyers with grim facetiousness term "an exemplary sentence," but what the man in the street calls a vindictive one, the whole benefit of the jury's finding would have been sacrificed. For every car driver in the country would have felt that an automobilist could never look for justice or fair treatment, and so the deterrent effect of the prosecution would have been sacrificed practically altogether. As it happened, the case was most fortunately tried by a judge of singular impartiality and clear-sightedness. His whole conduct of the trial displayed complete absence of bias, and his summing-up was characterised by marked fairness and discrimination. Loyally accepting the finding of the jury, as under the circumstances he was bound to do, he passed what on the whole must be regarded as a light sentence, but which is just heavy enough to exercise a wisely deterrent effect on the road hooligan and the reckless driver.

An Admirable Suggestion.

IN addition to his impartiality, we desire to thank Mr. Justice Bray for the exceedingly sensible proposal put forward by him when charging the grand jury. The judge observed that in his opinion the best way to deal with all accidents in which a motor car driver was concerned would be on similar lines to those adopted by the Board of Trade in the case of railway accidents, and he might have added loss of vessels at sea. In such cases a most exhaustive (and exhausting) enquiry is carried out which generally results in ascertaining who and what was in reality to blame, and is followed, at any rate in the case of captains of ships who have displayed any negligence, with very serious consequences to themselves. Mr. Justice Bray proposes that the necessary powers should be conferred on the Local Government Board. To make the proposal complete, it would seem that the drivers' certificates should come under the control of the

Board in the same way as the certificates of masters of ships come under the control of the Board of Trade, who have power to suspend a careless navigator if they think fit. That would be much more just to the motorist than permitting his certificate to be suspended by a bench of magistrates, who are often prejudiced, and have not the machinery necessary for conducting a satisfactory enquiry. If one may judge from the terror which the prospects of a Board of Trade enquiry, and the possibility of having their certificate suspended by the Board, instil into the minds of ships' captains, a similar arrangement would go a long way to absolutely eliminate the reckless driver. The plan would certainly be of the highest value both in assisting to prevent the customary Press exaggeration with which every automobile accident is embellished, and to which the Hon. A. Stanley, in a letter we published last week, drew attention. It would also strengthen the hands of the club in dealing with the reckless driver, whose final and complete elimination is a matter of more real concern to automobilists themselves than even to the general public.

The Parks—More Bureaucratic Exclusion.

SOME of our readers may possibly have imagined that the remarks which we made in reference to the Lord Chief Justice's decision in regard to the parks question a few weeks ago savoured of exaggeration. We observed at the time that "from henceforth the parks may be regarded as places where the principles of the British constitution do not apply," and "it will be now quite legal for the Commissioner of Works to reduce the speed (of motor cars in the parks) to one mile an hour or even to exclude them altogether." But we have not had long to wait for an exemplification of the truth of these observations, and a proof that they did not savour of exaggeration in the slightest. The First Commissioner of Works (that is to say the police) have wasted very little time in making use of the Lord Chief Justice's decision. They have now decided to exclude motor cars altogether from Hyde Park during the hours of the day when it is supposed to be the particular playground of fashionables—would-be and otherwise—viz., from 4 to 7 in the afternoon, except between the Victoria and Alexandra Gates. *The Daily Telegraph* describes this period as "during society hours." "Society hours" is a delightful expression which deserves to be copyrighted, and we hope the owners of electric broughams, who are generally among the fashionable classes, will enjoy the restriction. No one can now dispute the legality of the procedure, and we hope the Lord Chief Justice, if he ever takes himself to Hyde Park "during society hours," will experience a due sense of elation in the powers which his great position has enabled him to exercise when he sees the motor broughams of his friends turned back from the park gates. Seriously, the position is a scandal. The parks are the property of the British public, and every man has a right of access to them, even if he drives a motor car, provided he drives it rationally and properly. For the people to be excluded from the enjoyment of their own property in this manner is a proceeding which everyone must feel is an anachronism in the neighbourhood of the Thames, however it might become the banks of the Neva.

NEEDLESS to say, extreme indignation, amounting one may say to positive fury and gnashing of teeth, prevails among the users of electric vehicles, who have been in the habit of very largely employing these carriages

during the fashionable Park parade. Large numbers of Members of Parliament, too, have been accustomed to drive down to the House across the Park in motor vehicles of various kinds, particularly along the drive from Lancaster Gate to the Achilles Statue, which is now prohibited, though the portion from Victoria Gate to Alexandra Gate is still open to them. But, like unto the common or garden growler, "on this stretch they must not loiter," nor must they go at more than 10 miles an hour. An up-to-date motor car proceeding at 10 miles an hour would certainly appear to everyone to be loitering in a most preposterous manner, so if the police do not secure the conviction of automobilists for exceeding the speed-limit, they will get them for loitering without any question. Under the circumstances, even the stretch between the Victoria and Alexandra Gates is therefore likely to be little used.

This touch about loitering shows the First Commissioner of Works to be possessed of humour of a high order. He now has full powers to do as he likes. There is nothing to prevent him in the supreme and unfettered exercise of his autocratic power from shutting out all other carriages from the park "during society hours," and driving round it in solitary state by himself. Should he elect to adopt this course, however, we think it would be only becoming that he should offer the Lord Chief Justice a seat beside him.

The Odium Theologicum Once More.

THE Marquis of Queensberry's pistol with which he stated his intention of defending his children and their timorous nursemaid on their daily peregrinations to and from Edith Villas, has now given place to a canon—not the piece of ordnance, be it understood, but the Church dignitary—who, on the present occasion, however, seems to be even more explosive than that weapon of the secular power with which his title coincides. Canon Greenwell is of the same way of thinking as the Marquis of Queensberry, with a slight, a subtle and altogether intangible difference. We are, of course, referring to the reverend gentleman's remarks as Chairman of the Durham County Bench, when in pronouncing judgment on a motorist arraigned before him on the usual charge, he declared that "He would not say that they should shoot them, but it would not be a bad plan if a few were shot." Theological study, we understand, has always led to nice distinctions, and we leave it to the Canon and his friends to say what the distinction is between this and a direct incitement from the judicial bench to slaughter motorists. We are quite convinced that legally there is none at all, and if some Durham or Yorkshire yokel takes it into his head to put the Canon's advice into practice, and discharge a gun with fatal effect at some passing motorist, and say that he believed in doing so he had the sanction both of the Church and the judicial bench after Canon Greenwell's remarks, we venture to think the Canon would find himself in an exceedingly hot place—sooner, perhaps, than he anticipates.

Not the Spirit of the Meek.

It is really difficult to say whether such an attitude on the part of a high functionary of the Established Church of the realm is painful or laughable. It is laughable, of course, as being such a ludicrous violation of the tenets which the Canon must be professionally presumed to hold. It is painful as an example of the extent to which

anti-automobilist fanaticism can carry a man who, presumably by associations, position, and education, belongs to the cultivated classes. The thing would have been bad enough had the Canon merely expressed his private opinion. But as an utterance from the judicial bench it is a public scandal. Apart from its aspects as an incentive to outrage (from which point of view it can be by no means merely laughed at), it, of course, leads every automobilist instantly to conclude that from the Durham Bench, with such a Chairman, nothing approaching justice can be hoped for. In other days and other times, such an utterance would have been sufficient to ensure the Lord Chancellor removing the offender's name from the Commission of the Peace. With our present Lord Chancellor it is too much, perhaps, to hope for independent initiative of this kind, but we trust another week will not elapse without our being able to chronicle that the automobilist Members in the House of Lords have drawn the Lord Chancellor's attention to the episode.

With the result of the interpellation which has, since the above was written, taken place in the House of Commons we cannot pretend to be at all satisfied. Mr. Duncan asked the Home Secretary whether the reverend Canon had made use of the language attributed to him, and elicited from Mr. Akers Douglas the reply that he had been in communication with the reverend Magistrate, and had been assured by him that he only used the language by way of a joke, and that nobody in the Court took it in any other sense. With this the Home Secretary appears to be more or less content ("though he cannot approve of such remarks being made from the Bench even in jest"), and he does not think that any further action is called for. This certainly looks as if it were Mr. Akers Douglas' view that Petty Sessions should be conducted on the principles prevailing on board H.M.S. "Irresponsible"!

The Hill-Climbing Competition Question.

THERE is no doubt that the Automobile Club is not very enthusiastic about hill-climbing competitions. We can quite understand their state of mind. Once upon a time it was possible to find hills up which the cars of that day (it seems distant now, but it was only a few years ago) could not succeed in climbing at a very alarming pace. Things are different now. Even comparatively low-priced cars can romp up most hills, over which an ordinary road goes, at a speed in excess of the legal limit. This fact puts the club in a quandary. It is the guardian of the automobile movement in the United Kingdom, and several of its leading members are prominent members of the House of Commons. It is quite obvious that it will not do for the club to go on countenancing events and competitions in which the law of the land is broken, if it desires any consideration to be paid to the little phalanx of its members in the House of Commons when automobile legislation is being discussed. Such a state of things would simply amount (metaphorically speaking) to placing a loaded blunderbuss in the hands of Mr. Wason, Mr. Soares, and all the anti-automobilists in Parliament, for them to discharge at the head of the Hon. Arthur Stanley, the Hon. John Scott-Montagu, and the other automobilist members, whenever it suited them. So we think the club would be quite right to give up countenancing this sort of competition altogether.

It is quite plain, however, that it cannot continue its present course. The results of so doing were rendered plain enough at South Harting. Here a competition was decided, cars were classed, and a cup awarded on what we are since told was a time basis only, and yet the club does not venture to publish the times. That sort of thing is no good at all. It is merely the time-honoured device of the ostrich, who, having buried his head in the sand, thought it had discovered the very latest ruse in effectually hiding its body. The "personal" element, which, it was understood by some, prevailed, *might* have saved the situation, but such a suggestion is scornfully scouted.

Hill-climbs were originally devised as a method of testing the relative powers of cars without involving high speeds on the public roads, and at that time they were by no means speed contests; but they are speed contests to all practical intents and purposes now, so we think the club would do well to discourage them plainly and straightforwardly, and to say so, especially when in any way conducted for the apparent gratification of nobody except a few *poseurs*.

• • •
What is Needed.

THE abandonment of such contests is the less to be regretted, as the experts are by no means unanimous as to what mere power to get to the top of the hill in the shortest possible time represents in car value. There are such a number of complicated considerations to be taken into account. Two at least which ought to figure in any competition that permits a powerful car costing £1,000 to compete with a small car costing £100, are price and seating capacity, both of which need to be given arbitrary values in relation to "speed." How little agreement there is amongst those who have studied the subject is shown plainly enough by the fact that the club is still engaged in getting out a hill-climbing formula, while nearly every provincial club differs in regard to the formula to which it pins its faith. The situation is much as if horse experts were asked to devise rules by which Derby winners, ordinary hunters, carriage horses, cart horses, mules, and donkeys, could all be satisfactorily run together over the same course, and their relative performances compared.

Of course, what is really wanted is something that will amount to a short reliability trial—a test which will enable provincial clubs to appraise the relative capabilities and good qualities of the cars of their members in an afternoon or at most a day. One thing only is quite clear at the present day, and that is that a hill-climb will not do it.

We are all looking forward to the Tourist Trophy to give us some valuable data as to the best methods of improving and shortening reliability trials. At any rate, there are good grounds for believing that the limitations already proposed (and likely to be further elaborated) regarding power, weight, general proportions, and seating capacity, will tend to the production of certain definite types of car which it will be possible to permit to compete together without serious injustice or anomalies. Until, however, some such standardisation becomes general, it will only weaken the position of the Automobile Club to countenance such very unsatisfactory—and almost useless—competitions as hill-climbing contests.

A Royal Lapse.

KINGS, of course, can do no wrong, and reigning monarchs are exempt from the ordinary laws designed for regulating the conduct of their subjects. In this country, however, we have become so long accustomed to this portion of the Royal prerogative being "more honoured in the breach than in the observance," that it is with something of a shock that we learn that the German Emperor, for once in a way (it must be admitted the occasion was unusual), gave way to a temporary attack of speed mania, and raced an express train across the Lüneburger Heide. Near the picturesque old town of Celle, His Majesty very nearly had a bad smash. One of the tyres of his car burst, and the car, while travelling apparently at about 60 miles an hour, very nearly took a ditch, but the driver evidently was a man of metal, and nothing happened. The Emperor merely got out and continued the run to Hamburg on another car which was following. His Majesty has uttered in times past some very sensible observations regarding speed maniacs. It is a pity to think that their value is likely to be to some extent discounted by this momentary yielding to the excitement of speed. One thing, however, may be urged in extenuation, and that is that there is very little traffic on the Lüneburger Heide, that the country is flat, and that nearly everywhere one can see the road for miles and miles, and also anything that may be approaching on cross roads.

Promising Motor Boat Developments.

THIS week we place before our readers the first instalment of an article on the subject of suction producers in connection with internal combustion engines for the propulsion of motor boats. The subject should prove an attractive one to all interested in the future of the motor boat, for, to describe the advantages of the suction producer in a short and popular way, it may be said to combine the advantages both of the steam engine and the internal combustion engine in one and the same plant. It possesses the advantages of the steam engine, because it permits of the employment of coal or coke as fuel with the resulting safety and great economy. And it possesses the advantages of the petrol engine, ease of manipulation, with consequent saving of labour, readiness of starting, and high efficiency—that is to say, considerable horse power for small weight and great compactness. That the employment of suction producers for boat propulsion has now reached an important practical stage of development, is sufficiently guaranteed by the fact that Messrs. Thornycroft, whose experience in mechanically propelled boat building is second to none, have adopted the "Capitaine" suction-producer system, and we understand intend to enter a boat provided with it for the approaching reliability trials. We are taking advantage of the particulars in regard to the "Capitaine" producer, which have been placed at our disposal, to illustrate the principles involved in apparatus of this class, and at the same time to provide a popular article on the subject. One of the features of the apparatus which may, at first, possibly perplex the less technical of our readers, is the fact that the gas is actually produced in close contact with the mass of red-hot fuel, and is led away from it (to be employed as fuel in the cylinders of the engine) without being burnt. The furnace is, in fact, located in the heart of the gas producer.

GORDON-BENNETT RACE.—Map of the Auvergne Circuit, reproduced from the coloured map issued by Messrs. Michelin and Co. The course and features of the country are clearly shown in this map. We recently published this, but now reproduce it, so that our readers may more readily be able to follow the race taking place next Wednesday.

Photos by Michelin and Co.

The acute angle turning at Bourg Lastic.

Another sharp turn at La Cratiere.

The Turning in the valley of Tissonniere.

The Gendarme sharp corner.

AUVERGNE CIRCUIT. SOME OF THE SHARP ANGLE TURNS.

PARTICULARS OF THE COMPETING CARS IN THE GORDON-BENNETT RACE.

Country and Colour.	Official No.	Car.	Driver.	H. P.	Cyls.	Bore.	Stroke.	Engine.	Ignition.	Transmission.	Speeds.	Tyres.	Wheel-Base.	Track.	Clutch.	Radiator.
France (Blue)	1	Richard-Brasier	Théry .. Caillouis	90	4 prs.	160	140	mm.	L.-T. magneto	Chains, 1 sliding member in gear-box	3	{ 810 x 90 820 x 120 }	m.	1'35	Leather cone	Tubular.
	7															
	13	De Dietrich	Duray ..	120	4 prs.	190	150		L.-T. magneto	Chains, 2 sliding members in gear-box	4	{ 870 x 90 920 x 120 }	2'85	1'35	Metal cone	Honeycomb.
England (Green)	2	Napier	Earp ..	80	4	6½	6		Accumulators.	Live-axle, 1 sliding member in gear-box	3	{ 870 x 90 850 x 120 }	8 ft. 10½ in.	4 ft. 7½ in.	Leather cone	Tubular.
	8															
	14	Wolsley	Rolls ... Bianchi	90	4	7½	6		Accumulators.	Chains, 1 sliding member in gear-box	4	{ 32 x 3½ 32 x 120 }	9 ft. 1 in.	4 ft. 7 in.	Leather cone	Tubular.
Germany (White)	3	Mercedes	Jenatzy De Caters	120	4 prs.	185	150		L.-T. magneto	Chains, 2 sliding members in gear-box	4	{ 870 x 90 880 x 120 }	2'92	1'36	Scroll	Honeycomb.
	9															
Austria (Black and Yellow)	4	Mercedes	Selzer ... Braun ...	120	4 prs.	185	150		L.-T. magneto	Chains, 2 sliding members in gear-box	4	{ 870 x 90 880 x 120 }	2'92	1'36	Scroll	Honeycomb.
	10															
Italy (Black)	5	Fiat	Hieronymus Burton	110	4 prs.	180	150		L.-T. magneto	Chains, 2 sliding members in gear-box	4	{ 870 x 90 880 x 120 }	2'80	1'35	Disc	Honeycomb.
	11															
America (Red)	6	Pope-Toledo	Cagno ... Nazari	70	4 sep.	170	150		Accumulators	Accumulator	2	{ 820 x 120 820 x 120 }	2'70	1'30	Leather cone	Tubular
	12															
	18	Locomobile	Lyttle ... Dingley	100	4 prs.	170	150		Magneto	Chains, 2 sliding members in gear box	4	{ 870 x 90 880 x 120 }	2'85	1'35	Scroll	Honeycomb.

Special Features.

Napier.—Cast-iron liners in aluminium jackets. Heads cast separately in pairs.

Wolsley.—Horizontal engine. Cast-iron liners in aluminium jackets. Heads cast separately. Wheels stayed with wire spokes.

THE GORDON-BENNETT RACE,

WEDNESDAY, JULY 5TH.

ROUTES TO THE COURSE.

REGULATIONS for reaching the course at Laschamps from Clermont have been officially issued as follows. In the accompanying map, which we have specially prepared, the directions can be easily followed:—

Motor Cars and Motor Cycles (for the south side of the course).—Follow the National road, No. 89, from Clermont to Theix, passing Place Gambetta, Beaumont, Ceyrat. At Theix the road to St. Genest de Campanelle (*chemin d'interet commun* No. 82) must be followed, and after leaving this place Laschamps is reached, *via* Pardon and Beaune. For the north side of the course, the road to Chamliers (*chemin d'interet commun* No. 68) must be followed, cars then proceeding to Royat, Fontanas, La Font-de-l'Arbre, and crossing under the course by the passage near Enval.

Horse vehicles and cycles may only travel by one route, viz., the old Royat road, leaving Clermont by the *chemin d'interet commun* No. 5, which passes along the Boulevard Pasteur and the Chemin de la Poudriere. Royat railway station will also be passed, as will Ma Campagne, Bargoin Park, and Gravenoire. Vehicles then take *chemin d'interet commun* No. 21, leading to Charade, Manson, and Laschamps.

After the race, vehicles will return by the same respective routes at a speed not exceeding 7½ m.p.h. (12 kiloms.). This limit will be rigorously enforced.

Controls.

Official controls will be established in similar manner to the French Eliminating Trials, as follows, they will be of two classes:—Speed limit controls (indicated by blue flags) and stopping controls (indicated by yellow flags). At certain of the stopping controls the cars will be re-spaced by a 3m. interval, at the others they will be allowed to proceed immediately.

Speed-limit Controls (maximum speed 25 m.p.h. = 40 kiloms.):—

- (1) Quatre Routes near Nebouzat.
- (2) Entering Massagettes.
- (3) Turning at Bourg Lastic.
- (4) Crossing at Lastic.
- (5) Crossing at Sauvagnat.
- (6) Crossing at Bromont Lamothe.
- (7) At Saint Ours.
- (8) At Clermont Ferrand cross roads.

The acute turn on leaving Rochefort, which is said to be the worst turning on the whole of the Course. The cars ascend, coming in on the left of the picture.

The twisting road beyond Pontamur.

Bird's-eye view of the double turning at Champradet.

The double turning at Le Grand Tournant.

A FEW OF THE BAD TURNINGS. AUVERGNE CIRCUIT.

Stop and Start Controls:—

(1) Entering Rochefort.

Stopping Controls where Cars will be Re-spaced with Intervals of 3 minutes:—

(1) Entering Laqueille.

(2) At Pongibaud crossing.

Notes in Brief.

The start will take place at 6 a.m. on the 5th of July from the plain of Laschamps (point kilometrique 5.15 route grand communication No. 16).

Cars will be started at Laschamps at intervals of either three or five minutes.

The route will be closed to traffic from half-past four in the morning until six o'clock, and the time allowance for the race is until five o'clock in the evening.

The end of the race will be made known by the passage of cars decorated with tricolour flags, after which the public may make use of the course.

A speed limit of $7\frac{1}{2}$ miles per hour (12 kiloms.) is imposed on all vehicles returning after the race.

THE question has not yet been definitely settled whether the French Club have decided finally to take part in the Gordon-Bennett race in 1906 or not. In any case, it will probably be announced prior to the race next week what their decision is, so that whether they win or lose, their motives cannot be in any way questioned.

AUVERGNE CIRCUIT.—The “Quatre Routes” on the Circuit. The upper one at Clermont, and the lower at Nebouzat.

Photos by Michelin and Co.

AUVERGNE CIRCUIT.—The road at the Bois de Riom, one of the few straight stretches on the Circuit.

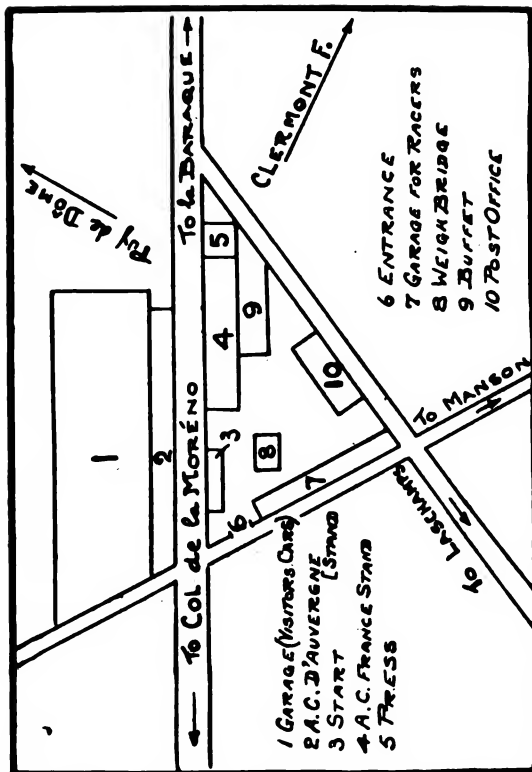
AUVERGNE CIRCUIT.—Between Laqueuille and Bourg Lastic, another of the straight roads.

Photo by Michelin and Co.

SOME rather striking details are published in Paris in connection with the withdrawal of the Dufaux cars on behalf of Switzerland. As originally reported by us, the withdrawal is due to the Swiss Club having called upon the Dufaux Brothers to pay the whole of the expenses required by the French Club as the proportion of the Swiss Club towards the organisation of the race. Messrs. Dufaux, not unnaturally, could not see eye to eye with the club in this respect, having paid originally the entrance fee demanded of them, and made formal entry in consequence, and taken on the heavy expense of building the necessary machines.

From the details now published of this episode, it would further appear that although the share of the expenses of the organisation asked of the Swiss Club by the French Club amounts, as agreed at the International Conference held in Paris last December, to a sum of 25,000 francs, the Swiss Club have called upon the Dufaux Brothers to pay them 50,000 francs. As a bare statement, on the face of it, this appears to be curious, but possibly some explanation may be forthcoming from the Swiss Club in regard to the matter.

GORDON-BENNETT RACE.—Two of the British team on the Auvergne course. The Hon. C. S. Rolls (driving) with Hands, his mechanician, by his side, and in the tonneau of the Wolseley Car is Mr. Bianchi on the right, and his mechanician, Wilde.



GORDON-BENNETT RACE.—Plan showing the positions of the grand stand, weigh-bridge, &c., at the starting point at Laschamps on the Auvergne Circuit.

GORDON-BENNETT RACE.—One of the three Fiat Cars which will represent Italy on Wednesday next in the Race, Lancia, who drove a similar racer at Homburg last year, finishing 7th, is seated in the car with his mechanic, who will accompany him. The Fiat Racers have four cylinder engines, developing 100-h.p.

GORDON-BENNETT RACE.—The two other Italian drivers who are to compete on behalf of their country in the Gordon-Bennett Race next week, viz., Nazzari and Cagno, with their mechanicians, who will accompany them respectively round the Auvergne Circuit. Cagno is the Queen of Italy's driver, and is well known in Continental motor racing circles.

GORDON-BENNETT RACE.—Map showing the roads officially set apart for visitors wishing to witness the race from the starting point at Laschamps. The roads are clearly indicated which are reserved (1) for motor cars and motor cycles, and (2) for horse-drawn vehicles and ordinary cycles, travelling between Clermont Ferrand and Laschamps, to reach either side of the course.

THE 1905 DE DIETRICH CARS.—PART I.

A 24-h.p. De Dietrich Car, with side entrance body.

So enviable a reputation has already been earned by the De Dietrich Company in this country, as well as on the Continent, that it is almost unnecessary for us to do more than remind our readers that the cars made by this firm stand in the very front rank of up-to-date pleasure vehicles. It is not surprising that the De Dietrich cars should be remarkably fine examples of engineering construction, considering that the works in which they are manufactured afford exceptionally favourable facilities for the purpose, for the De Dietrich Company is an old established firm of railway coach and wagon builders, and their enormous factory at Luneville is equipped with all the necessary up-to-date appliances to enable every portion of a complete car to be constructed upon the premises. In spite of the large size of their existing works, however, the success which has attended their automobile business has been such that they are not only greatly extending their factory, but are sparing no

expense in the further development of this new branch of their business.

We have already given—in connection with the last Paris Salon and on other occasions—some of the leading particulars of the standard models which the Company are turning out this year, but, hitherto, it has been impossible for us to include a fully illustrated and complete description amongst our “cars and systems,” and only recently have Messrs. Jarrott and Letts—the English agents—had a spare chassis to place at our disposal for the purpose. Now, however, we have made a close study—and have obtained a very complete set of photographs—of the 24-h.p. chassis, and are therefore in a position to deal with the 1905 models in an adequate manner.

As will be seen from what follows, the new models—of which there are four distinct types—differ very considerably from those of last year. The chassis are now

Fig. 1.—View of the 24-h.p. De Dietrich Chassis from the “off” side.

Fig. 2.—View of the 24-h.p. De Dietrich Chassis, as seen from above.

built so that they are not only much longer but are also lower. They are, in all cases, of the chain-driven type, and now have ball-bearings fitted throughout the entire transmission-gear, and in the road-wheels.

The same simple and neat appearance has been retained in the design, although the accessibility of each part has been greatly improved, and an increased efficiency of transmission has been obtained by eliminating all lateral strains on the mechanism. At first sight, perhaps, an impression is produced that the new engine is more complicated than that on previous models, but this in reality is far from being the case, and closer investigation tends to show that its improved characteristics have been obtained without sacrificing its reliability or the accessibility of any of its component parts. The workmanship throughout the car is, if possible, of an even higher grade of excellence than previously, and it is evident that the De Dietrich Company have kept fully in touch with recent developments in the metallurgical world, for the materials employed by them are second to none. Each of the four models is constructed with frames of three different lengths to suit various types of body, and the general design

of all four chassis—the 16-h.p., 24-h.p., 40-h.p., and 60-h.p.—is identical, except that no half-compression device is fitted to the smallest.

Special Features.

The leading respects in which these latest cars differ from previous De Dietrich practice, and from the vehicles of other makers, are as follows:—The engine is not only of a distinct design—with mechanical inlet-valves so arranged above the cylinder-heads that they are readily accessible, although operated from the same shaft as the exhaust-valves—but the method employed for controlling it is unusual. It has no automatic governor of any kind, and its speed and power are regulated by the driver. Not only is there a throttle-lever above the steering wheel, but the clutch pedal is arranged in such a way that it tends to close the throttle-valve when the clutch is disengaged. Superior, however, both to the hand-control, and to the action of the clutch pedal, is a foot-operated accelerator, by which the engine-speed can at any time be increased. The ignition system is of the low-tension magneto type, and this is arranged in such a way that the armature of the

Fig. 3.—View of the 24-h.p. De Dietrich Chassis, from the rear.

magneto is "advanced" or "retarded" simultaneously with "timing" the igniters. In connection with the engine, attention should also be drawn to the half-compression device that renders even the 60-h.p. engine easy to start.

but it is now designed in such a way that the inner member can be quite easily removed, and a new leather face could, if necessary, be substituted without dismantling any other portion of the mechanism. Similar accessibility has been secured for the change-speed-gear, for not only is the gear-box so made that it can be partially or completely removed, but it is connected with the ends of the countershaft, and with the clutch, by universal joints which have the additional advantage of preventing any strain from being imposed on the shafts, however much the main frame may twist.

The brakes are also specially noticeable by virtue of the ease with which they can be adjusted, and of their substantial and simple construction, while the steering gear is—from many points of view—remarkable, partly because the lever-arm does not overhang as is usually the case, and partly because provision is made for taking up all wear.

Leading Dimensions.

As already mentioned, each of the four models is made in three different lengths. The 16-h.p. chassis has a wheel-base of 9 ft.,

Fig. 4.—The 24-h.p. Engine fixed in place on the De Dietrich Chassis (left side), showing the exhaust-valves and inspection-covers, the inlet-valve, operating-mechanisms, the half-compression device, and the pressure valve.

Quite a new form of carburettor has been adopted this year, and this has been designed in such a way that the spray-jet and the needle-valve in the float-feed-chamber are both easily removable. An approximately constant richness of mixture is maintained by opening auxiliary-air ports at the same time that the throttle-valve is opened, and a very effective spraying effect is obtained by allowing the two currents of air (the main air and the auxiliary air) to impinge against one another above the jet.

In order to overcome the disadvantages of feeding the petrol from the fuel-tank to the carburettor under pressure, and in order to enable the engine to be started (or to continue running) while the tank is being refilled, a small auxiliary tank is placed on the dashboard, and this is normally kept full by the main supply. Even when no pressure is available, the petrol can flow by gravity from the auxiliary tank, and thus the large tank can be made to form an actual part of the chassis, without any attending inconveniences; the De Dietrich chassis are quite complete in themselves, nothing being fixed to the body.

The main clutch is of the ordinary leather-faced cone type and is controlled, as before, by a stationary spring;

Fig. 5.—View, from the right side, of the 24-h.p. Engine fixed in place on the De Dietrich Chassis, showing the igniters, with their rotary switches, the carburettor, and the magneto.

of 9 ft. 8 in., or of 10 ft. 4 in.; the 24-h.p. chassis, which is that from which our photographs were taken, has a wheel-base of 9 ft. 2 in., of 9 ft. 10 in., or of 10 ft. 6 in.; the 40-h.p. vehicle has a wheel-base of 9 ft. 4 in., of 10 ft., or of 10 ft. 8 in.; and the wheel-base of the 60-h.p. model is 9 ft. 7 in., 10 ft. 3 in., or 10 ft. 11 in.

The engines all have four cylinders, and the only real difference between them—except for the absence of the half-compression device on the 16-h.p. type—is in their size. The bore and stroke of the 16-h.p. are 104 and 120 mm. respectively; of the 24-h.p., they are 120 and 120 mm. respectively; of the 40-h.p. they are 130 and 140 mm. respectively; and the bore and stroke of the 60-h.p. engine are 150 and 170 mm. respectively.

The cars sold in England have 870 by 90 mm. tyres on the front wheels, and 920 by 120 mm. on the back wheels.

Our Illustrations.

Apart from those of complete vehicles, which show some of the types of body that can be fitted to suit individual requirements, our illustrations are specially selected with a view of enabling the construction of the chassis, and all its chief parts, to be seen at a glance, while—following our usual practice—one system of reference letters has been employed throughout, and a table is appended by which each can be identified. Three views of the complete chassis are given in Figs. 1, 2, and 3, and these, taken in conjunction with one another, will be found to render clear the position of each portion of the mechanism, while in Figs. 4 and 5 are obtained two views of the engine fixed in place in the chassis, with all connections made, but with the dashboard removed.

The engine itself is shown separately, from each side and from each end, in Figs. 6, 7, 8, and 9, and a further

view—from above—is given in Fig. 11. Some of its more important parts, dismantled, are illustrated in Figs. 10 and 13, the former showing a cylinder casting with the inlet-valves lifted out for inspection, and Fig. 13 showing the two portions of the crank-chamber, as well as the crank-shaft with its pistons.

In Fig. 12 are two views of a low-tension igniter, and in Fig. 14 is shown the dashboard with its fittings in place. The carburettor is seen from two different points of view in Fig. 15, and its internal construction is rendered clear in Fig. 16. Fig. 17 is intended primarily to demonstrate the accessibility of the clutch-cone; the photographs not only show the construction of that mechanism, but also give excellent views of the parts that connect the clutch and accelerator pedals with the throttle-valve.

In Figs. 18, 19, and 20, the change-speed-gear, the foot-operated brake on the countershaft, and the compensating mechanism for the hub-brakes are well in evidence, the first showing the open gear-box from above, the second giving two views of the countershaft, and the third being a view of the front and central portions of the chassis is seen from above.

In Fig. 21 a good view of the interior of one of the expanding hub-brakes is obtained, and Figs. 22 and 23 refer to the steering gear; this is shown complete with the steering pillar and the wheel in Fig. 22, and the gear itself is seen dismantled in our final illustration.

(To be continued.)



Another Beck Case in parvo.—We feel compelled, in the public interest, to draw attention to an example of miscarriage of justice, coupled with an almost unparalleled exhibition of insolent arrogance on the part of the police official mainly concerned in it. A Mr. J. W. Hoyle, of Brighthouse, was on May 17th last fined £5 and costs, with a month's imprisonment in default of payment, for driving a motor car in Shipley without a rear light. The evidence was that of two policemen, who maintained that the car in question bore the number AK 58. Mr. Hoyle declared that the car with this number had not been out for three months and was out of repair, evidence which was confirmed by a motor engineer of the name of Harold Flather. Notwithstanding this, Hoyle was convicted. It has since been announced by the solicitor of Mr. Illingworth, a Bradford magistrate, whose car bore the number AK 56 (a number that evidently was mistaken for AK 58), that Mr. Illingworth actually drove through the district in question on the very night in question, and that his rear light frequently went out. It is, therefore, quite clear that a miscarriage of justice has taken place, though the evidence establishing Mr. Hoyle's innocence did not come to hand till too late for him to appeal to Quarter Sessions, and as a point of law is not involved, he cannot appeal to the Divisional Court. One would have thought that under such circumstances both the magistrates and the prosecuting police superintendent would have jumped at the opportunity of doing the correct thing gracefully, and have been as pleasant as possible about it. Nothing of the kind! Crawshaw, the Superintendent of the Police, had the gratuitous

insolence to state publicly in the Court, though he was not giving evidence, facts of a private nature calculated to be seriously detrimental and annoying to Mr. Hoyle, who, it must be remembered, all the time is an innocent man wrongfully convicted, and one whom this police official, as a public servant, ought to have been most anxious to see justice done to. Under such circumstances, the absurdity of Crawshaw having previously attempted to suggest, as he did, till promptly stopped by the solicitor for Mr. Hoyle, what Mr. Illingworth would have done "had he been a gentleman," was a little too preposterous. This serious miscarriage of justice, coupled with this painful exhibition of police insolence, is a useful reminder that the spirit which led to the Beck scandal is still rampant among undesirable members of the police.

ONE of the daily papers has indulged in a short biography of Lord Windsor, the First Commissioner of Works, whose arbitrary action in excluding motors from the parks "during society hours" has attracted so much attention and given rise to so much indignation. Our daily contemporary attributes the First Commissioner's action, in spite of his actually being an automobilist himself, to nervousness, and this nervousness in turn to the fact that in early youth the nose of the noble lord was broken, or, at any rate, seriously damaged by a cricket ball. A more laughable *non sequitur* we have seldom heard of. Why, if because your nose has been broken by a cricket ball in early youth, you should in late middle age become nervous of motor cars, is a psychological mystery of the first magnitude.

MARINE GAS ENGINES.

THE "CAPITAINE" SUCTION-PRODUCER.

INCREASED safety and reduced cost of fuel have been the principal considerations which have led to attempts being made to find a suitable substitute for the petrol engine, and hitherto this substitute has been chiefly looked for in the development of the heavy oil internal-combustion engine. With the development of the motor boat, these matters have increased in importance—particularly from the commercial point of view—and they have lately been the cause of renewed activity in the application of the gas engine to a class of work which has, hitherto, been almost exclusively performed by the steam engine. It is, of course, chiefly from its commercial aspect that the marine gas engine derives its claim to the careful attention which it is more and more closely receiving as time goes on, and is just now receiving to a very greatly increased extent in several influential quarters.

its producer, and the petrol engine with its carburettor, yet the characteristics of the fuel used (coal) do not lend themselves to anything like the same simple treatment as do those of petrol.

Coal Gas and Producer Gas.

Gas engines have, of course, been in use on land for many years, and originally their fuel was coal-gas, obtained directly from the town mains. Coal-gas, however, is primarily an illuminant, and is rendered more expensive than it otherwise need be in order to make it specially suitable for lighting purposes. But gas engines run equally well on the cheaper fuel—producer-gas—which is also obtained from coal, and has for several years now been used for power purposes. When coal is converted into coal-gas there remains behind, as coke, at least 60 per cent. of the original weight of the fuel, but when coal

Fig. 1.—The Capitaine Launch fitted with a Capitaine marine motor and suction producer.

"Producer" versus "Carburettor."

With the problem of the heavy oil engine, motorists generally are to some extent familiar, and our readers have been kept well informed concerning such progress as has from time to time been made in this direction. The gas engine, however, is a thing apart—involving as it does the employment of a very different type of apparatus to the carburettor—and it has but comparatively recently claimed their attention as a possible, and by no means unlikely, prime mover for motor boats. The difference between an ordinary gas engine and an oil engine is, in reality, a difference in class rather than in kind. The carburettor of the latter makes its gaseous "mixture" as required by the engine, the action being essentially a hand-to-mouth process, and it is only the readiness with which petrol may be turned into gas, and the fact that no residue of any kind is left behind in the fuel tank, that enables the operation to be carried out so quickly and by means of so simple and diminutive an apparatus. Most gas engines, however, draw their supplies from gas which has been stored in a reservoir for the purpose, and although, as we shall see presently, the latest developments in this direction have evolved a striking similarity in action between the gas engine with

is converted into producer-gas nothing need be left except a small percentage of ash. The economy of the producer-gas over coal-gas is, therefore, obvious.

For the benefit of those who have not realised the difference that there is between coal-gas and producer-gas, or who are unfamiliar with the actual processes by which they are alternatively obtained, we think the following instances, in which both kinds of gases are given off from an ordinary household fireplace, will serve to bring the matter home to even the least technical reader. Any combustible material when raised to a high temperature in air becomes wholly or partially converted into gas. In an ordinary fireplace, where coal is burnt, the blaze is the result of igniting the stream of gas which is driven out of the upper layers by the heat of the incandescent fuel beneath—this gas is coal-gas. If, however, coke is employed, no such yellow flame is ever visible, but, instead of this, there often is a bluish non-luminous flame that takes its place. In this case the gas is emitted from the incandescent layers themselves, and this gas is producer-gas. In either case the flame merely results from the ignition of the gas, which, if not ignited, would pass up the chimney unburned.

(To be continued.)

THE USE OF THE HIGHWAYS.

THURSDAY evening, June 22nd, was the occasion of a very interesting discussion on this subject. It took place at the Hotel Cecil, and was held subsequent to one of the Society of Motor Manufacturers and Traders' dinners. Mr. Henry Sturme, who opened the discussion, spoke chiefly about the personal use of the highways and the inconsiderate driving question. Opposition, said Mr. Sturme, was mainly attributable to ignorance of the driver's control over his vehicle. This ignorance was not altogether confined to the lay public, and he deplored the practice of rich novices making their first essays with high-powered cars on our main highways. Motorists were not the only offenders by any means, and Mr. Sturme very justly instanced the excuse so frequently given and accepted in the case of horse accidents, "Oh, it's a young horse." Young horses, said the speaker, should not be allowed on our main roads in charge of ordinary individuals until they are thoroughly broken in. Among other remarks made in Mr. Sturme's very sensible and open-minded speech, was one to the effect that the horn was provided for the purpose of giving audible warning of approach, and that the rather increasing practice of omitting its sufficient use was much to be deprecated. Cutting corners on the wrong side of the road was another objectionable practice of some tourists, who evidently think that the science of a Gordon-Bennett race might be profitably applied in all circumstances. Mr. Sturme's remarks about pedestrians, were not eulogistic of that body as a class, and his humorous remark that they should carry head and tail lights was not without its serious side.

The Hon. A. Stanley, who followed Mr. Sturme in the discussion, spoke of his recent observations in the House of Commons, and testified to the better feeling which now seemed to prevail amongst *anti*-automobilists. Even Mr. Cathcart Wason, who has some fame in this respect, and was to have been present at the dinner, had expressed himself in his letter of apology as not being antagonistic to motorists generally—but only to a small and objectionable class. The effect of the Act, said Mr. Stanley, was spoiled by the speed limit, if this were eliminated the penalties under the "common danger" clause might even be increased without prejudice to motorists as road users.

Major Lindsay Lloyd, in opening his remarks, confessed that the title chosen for the subject of the discussion had not conveyed to him so much the idea of considerate driving on roads, as of the uses for which roads were, and more particularly were about to be, employed, and that the real question at issue was what is the *nature* of our roads. Personal considerations, said Major Lloyd, will undoubtedly adjust themselves in time, but unless there is a decided move in the direction of ensuring our highways being capable of carrying the traffic which will unquestionably be put upon them in the near future, there will be a deadlock. Bridges, for instance, were a particular bugbear, it was all too common to find bridge notices containing a clause to the effect that the bridge was only safe for loads not exceeding those "customary in the neighbourhood." Long distance through traffic, and not local traffic, was the real purpose for which our highways were built, and it was absurd that the authorities should be allowed to obstruct the through routes in our kingdom in this manner.

Mr. Bennett Stanford made a very sensible suggestion, which, if followed up by those to whom it applies, would do much towards creating a better feeling on the part of those to whom the "dust nuisance" is a particular grievance. This suggestion—which Mr. Bennett Stanford has already expressed before one County Council, of which he is a member—is to the effect that the local authorities should expend some part of the money accruing from licensing in the oiling of the main roads in the immediate vicinity of such isolated dwelling houses as were more particularly affected by the dust raised by passing cars. Another point, touched on by other speakers also, which Mr. Bennett Stanford raised, was the necessity for a central authority for the control of our main roads, and while speaking on this subject, he suggested that even toll gates—every hundred miles or so—might be tolerated, if they were found necessary as a source of revenue.

Mr. S. F. Edge said that he considered that it was the sudden appearance of a car which caused more annoyance to other users of the road than mere speed. People were not afraid of a car, nor of its speed, but if they were startled by its sudden appearance in the first instance, then they were sure to be subsequently annoyed at its comparatively rapid rate of progression. Mr. Edge also suggested that all road users ought to be subjected to a stiff examination of their capabilities for using the roads properly.

Mr. Rees Jeffreys was among the speakers to touch upon the national importance of a central control for our highways, and of the importance of adapting our roads to our traffic and not our traffic to our roads. In this connection, he instanced the behaviour

of the Board of Trade when dealing with railway accidents, and that of the average coroner's jury when dealing with motor-car accidents—both caused, for example, by an imperfection in the route. The former body request that the permanent way be made safe for the speed attained, and the latter that the speed of the vehicle be restricted until the speed becomes safe for the road as it is constructed.

Mr. G. S. Gawley's remarks were mainly concerned with the necessity for good foundations to roads, and he made the interesting observation—based on figures obtained from an authority in a position to express an opinion—that the main highways could probably be reconstructed to suit future motor traffic at a cost equivalent to 10 years' capitalised value of the present upkeep expenditure—the subsequent upkeep being, of course, far less than that now obtaining.

Mr. F. Coleman, Mr. W. G. Williams, and Mr. Hills also took part in the discussion.

In the absence of the President, the chair was occupied by Mr. H. G. Burford.



INDUSTRIAL ALCOHOL.

(Concluded from page 777.)

DR. ORMANDY, in reply, said: The Chairman (Mr. S. Straker) seemed to apprehend that the use of a compression amounting to 8 or 10 atmospheres would lead to difficulty in starting. If it were necessary to start an engine under this compression, difficulties would certainly be introduced, but, fortunately, it is easily possible to arrange matters in such a way that the engine is started under a partial compression.

A point of great value in favour of alcohol, which has not, I think, been referred to before, was made by your Chairman, when referring to the state of the law with regard to the introduction of petrol-driven engines into or about the dockyards. As mechanically propelled vehicles become more and more generally employed, this obligation will tell very heavily against them in such cities as London, Liverpool, Glasgow, and the like.

With regard to the question of denaturing, there is no substance yet discovered so efficient as wood spirit. The point which requires to be raised in this connection, is whether the Government would not be sufficiently safeguarded if only half the present amount of wood spirit were used, together with the addition of a small quantity of crude benzene or solvent naphtha, together with the addition of enough methyl violet to colour the spirit. Dr. Thorne pointed out that when benzol had been added to an alcohol it was possible to separate the benzol by the addition of water, and that the benzol, thus separated, actually removed some of the evil-smelling compounds present in the wood spirit, which was a Government safeguard. In what way this is to be considered as a particular disadvantage is hard to see, since it is open to anyone to buy a small quantity of benzol, which can be added to the methylated spirit as made at present, before additional water is added. In other words, if benzol can be used to purify methylated spirits, so as to render it drinkable, it will not make much difference whether the benzol is present to begin with, or has to be obtained. The class of people likely to systematically defraud the Government are not likely to be put off by the difficulty in obtaining a common product like benzol.

Continuing, Dr. Ormandy said that the Hon. John Scott-Montagu, M.P., spoke hopefully about alcohol as a fuel. His remark, that so long as potatoes were used as a valuable food in Ireland there was little chance that potatoes would be used for alcohol making, is rather wide of the mark. It was never suggested that edible potatoes, or rather potatoes grown specifically for edible purposes, should be converted into alcohol. The suggestion made has been that more land should be put under cultivation, and more employment for labour found by growing more potatoes and converting these into alcohol, which is indeed a very different case. To listen to Mr. Scott-Montagu's remarks would lead one to think that every yard in England and Ireland capable of being put under cultivation for potatoes was at present so occupied. Unfortunately, this is very far from being the case. He spoke of land being more highly cultivated in this country than in Germany, which is hardly correct, and statistics go far to show that more and more land in this country is continuously going out of cultivation, and being converted into permanent pasture. Then again, the speaker kept making comparisons between the cost of methylated spirit as it is, with petrol as it is. The object of the meeting to-night is rather to pave the way for a substitute when petrol advances in price—a state of affairs which the near future is likely to experience. The time-worn argument that motor cars do not run on alcohol in Germany and France was brought up by Mr. Scott-Montagu, and a number of other speakers. Possibly the fact that these speakers are not connected with the technical and commercial side of the motor

trade, may account for their non-appreciation of the reply which has been put forward in answer to this argument. Statistics show us that no less than three-quarters of the cars made in France are sold outside the country, and the same applies in equally high degree to Germany. Is it then likely that these manufacturers will build cars specially designed for a fuel which is only obtainable in their own country, and which, even there, is not so easily and so generally obtainable as the more usual paraffin product? So long as alcohol is only used in one or two countries, so long will it not pay large makers to lay themselves out for special models designed to work therewith.

In all probability the speakers who refer to the smell of the exhaust of alcohol engines have never had experience with an engine running on approximately pure denatured alcohol, for the simple reason that the motor car engine designed for use with this substance has not yet been made, and in order to be able to use alcohol in the existing engines, it has to be mixed with a large percentage of benzol. The exhaust from engines using the mixture certainly smells worse than from the engines using petrol. This is another case of arguing from false premises. The solution of the difficulty proposed by a speaker is one which does not answer some of the chief points which to-night's paper was intended to bring forward. The use of a heavier spirit, though it would increase the amount available for motor purposes, would still leave the supply in foreign hands, and would still leave the market open to manipulation.

The remarks of the next speaker, Mr. Tyrer, certainly led us to think that it would be possible to arrange conditions such as would enable us to have alcohol made within our own shores at a price very much less than now obtained. The satisfactory importance of this subject was that, on the whole, it confirmed my concluding statement—that the Government were prepared to consider any reasonable case for further alteration in the law presented to them by the motor manufacturers.

Col. Holden, said Dr. Ormandy, confirmed the idea that petrol was regarded as more dangerous than dynamite, but seemed to think that the heavier oil engine would finally displace the petrol engine. As the difficulties in the way of using heavy oil are of the same nature, but immensely greater than those accompanying the use of alcohol, it would seem that the only question as between the two was one of price. Once more it must be pointed out that the solution offered does not solve the question as to the necessity for an indigenous or colonial supply.

In conclusion, one may say that the difficulties which have been raised are by no means to be considered insuperable, and that the arguments in favour of looking out for some fuel other than petrol have been very convincing. The only suggestions offered were in the direction of using what one might call the continuation products beyond petrol, and as the use of this leaves us in the same position as before with regard to many of the points raised in objection to petrol, it would seem that the case in favour of the formation of a committee to examine more fully and completely into the question of fuels has been well made out.

Sir David Salomons (communicated):—My general impression is that most speakers lost the point of the question of "home-produced fuel," and discussed the alcohol question from other standpoints. Also, I saw that the whole matter was what Americans call "too previous," namely, assistance is asked from the Government before a satisfactory engine is forthcoming. I do not think so despairingly of alcohol engines as certain other speakers, and would also point out that the experiments made in France are delusive, since benzine is mixed with the alcohol. Nothing was said on the beetroot spirit produced by sugar making, which could be had for a nominal price in France, but the Government refused all help. I am told this by people interested in the matter in France.

It appears to me the proper method to pursue is the following:—To have an international competition of alcohol engines, say, in two or three years' time, with substantial prizes, and announce the matter now, that inventors may start on the work. I would suggest two first prizes, of not less than £1,000 each. That a committee of four or six experts be formed to draw up the conditions; amongst the following should be a *sine qua non*: (1) Engines for road carriages. (2) To be of no greater weight or size power for motor power than the best petrol engine of to-day. (3) That the starting, running, attention, &c., shall be as easy and convenient as to-day with best petrol motors.

I suggest that one prize be for an alcohol engine of its own special type. The other prize for the best modification of the present form of petrol engine to use alcohol (the object of this is to avoid throwing out of use thousands of engines in the event of petrol supply running short).

The prize should only be given for the complete solution and not merely for the best engine presented to the judges. If this question is solved, then the great impetus which must follow in the alcohol trade will enable the Government to give facilities without loss of

revenue. If you think such a move is desirable, I think all Automobile Associations should join in a prize fund, namely, yours, the Club, Motor Boat Clubs, &c., &c., and I should naturally be willing to become a subscriber.

Mr. W. J. Malden (communicated):—The statement of the Chancellor of the Exchequer, that the average price of potatoes to the Irish farmer is £2 per ton, seems to have been accepted as being conclusive that there is no possibility of Irish potatoes being made use of. Had he said that no potatoes could be bought in Ireland under £2 per ton, there might have been some good reason why this reading should be accepted. But surely, where the average price of sound potatoes is only £2, it must be certain that a large proportion fall below that sum. For my own part I am quite certain that the whole growth of Irish potatoes does not bring home a clear £2 per ton. I cannot but think that there is a very wrong idea as to the price at which potatoes, well suited to the making of alcohol, are obtainable, as within the last few months I have had to leave potatoes in the clump, because the demand for those too rough for culinary purposes, though of high starch-yielding properties, has been so small that they would not pay to send away. I could not help feeling that I would have liked to have the Chancellor of the Exchequer or Mr. Scott-Montagu as prospective purchasers—not at £2 per ton, but even at the lowly 5s.—I have in my experience practically thrown away hundreds of tons, all good stuff to make alcohol; every year there is a vast quantity of rough stuff practically wasted.

The United Kingdom grows something like 1,200,000 acres of potatoes. In most years there is a considerable amount of disease—not necessarily disease which reduces the potato to a pulp at once, but which renders it unfit for culinary purposes, though little affecting its use for making alcohol. As stock food, potatoes have not a big value, especially as, if fed to horses, cattle, &c., in free quantities, they are highly poisonous. In fact, I have had horses and cattle poisoned by them. I am confident that two tons per acre does not on an average cover the waste in potato growing, and this gives approximately 2½ million tons which sell at £1 per ton or under, or which are wastefully fed to animals, or are allowed to rot. Surely these would not be too dear as a source of alcohol were Excise difficulties alleviated and denaturing adopted. As Germany gets over the difficulty by denaturing, why should we not have equal ingenuity?

The members of your society will generally agree that motors are to replace horses. Ireland is essentially a horse-rearing country. The staple crops of Ireland are grass, oats, straw and roots—all of which are largely grown to support horses in Ireland and out of it; I leave out potatoes for the moment. What crops can anyone suggest which can keep the land in cultivation in Ireland as the horses give way to the motor? Canada is relatively near at hand to send over oats and hay, which it must do in fast increasing quantity now that the land is being so rapidly brought under the plough. What is the future of Ireland unless some help is given to it to develop its potato growing?

Near Dublin, Belfast, Cork, Waterford and a few other places, potato growing is carried on in a highly skilful manner, and potatoes of a high quality are raised. The growers have large populations at hand, moreover they export a good many. These, I quite believe, average £2 per ton and considerably more. But there are only eleven towns in Ireland with a population of 10,000 people, apart from these the people are rural or semi-rural. Yet some 600,000 acres or more are grown yearly. The better quality goes to the town or for export. The bulk of the potatoes are of low culinary quality, apart from those in the districts mentioned, and, when exported to England, fetch low prices. The main portion of the crop is consumed at home, where certainly they have not a value of £2 per ton.

The price of pork in Ireland does not allow a high price for the potatoes from which it is raised; eggs and poultry show little return on the prices paid, and milk, even under the advantages of organisation, fetches only 3½d. per gallon with the skim back. How can anyone make the return on potatoes above £1 per ton when such conditions prevail? Taking out the top price of the specially good ones, those sold to towns or for export have heavy charges for carriage, commission, sacks, extra labour in sorting, &c., which makes the price at home very different from that at market. In Ireland, England, and Scotland, it is not, however, a matter of average that needs to be dealt with industrially, it is the big low stratum of indifferent crops for which a market is specially needed, and for which £1 per ton would be gladly accepted. These run into millions of tons every year.

Of course everything does not rest with automobiles. There are many other industries which could be greatly advanced were Excise difficulties removed. Automobilists are, however, an organised body with the ear of Parliament; and are associated, directly or indirectly, with other industries which they could influence, and might lead the way.

FERRY OR BRIDGE.

LITTLEHAMPTON AND THE PROPOSED NEW BRIDGE.—Map showing the great convenience which the new bridge will be for general traffic. The new scheme will open up the level flat road from Brighton to Bognor, &c., instead of cars and other traffic having to travel round the hilly district viâ Arundel, or be subjected to a tedious wait and awkward ferrying across as at present.

THE proposed new bridge over the Arun at Littlehampton has already been the subject of some discussion in our columns, and, as our readers will call to mind, the result of the attention that we have been instrumental in concentrating upon the subject has resulted in an amendment of the Bill empowering it to be built, which will involve the elimination of a ridiculous old clause which *could* have been interpreted to the great disadvantage of automobile goods transport. A glance at the map and at the photograph which we reproduce, will show that it is particularly for the transport of goods that the new bridge will be of the greatest value. Two roads run along that part of the Sussex coast where the downs, retreating from the sea, leave a tongue of some of the richest alluvial soil in England. One of these, from Brighton to Chichester, runs over spurs of the downs through Clapham Woods and Arundel. It is the more picturesque and in some ways the better road of the two, and from time immemorial its surface has been of the best. The lower coast road is shown by a thicker black line on the map, and winds about considerably. It has the great merit, however, of extreme flatness, and from this point of view is specially suited to goods transport, though, of course, the sea-road has its charms too, and there are many occasions on which automobilists desire to use it. Hitherto it has been rendered relatively impracticable by the gap formed by the River Arun at the point indicated by a black circle. This gap has hitherto been negotiated by a ferry designed to

take a few carts across at a time, and worked by a chain and winch. This is, of course, quite inadequate to cope with the traffic which the lower road is capable of accommodating, and Littlehampton is accordingly promoting a Bill to enable a regular bridge to be built here, and tolls to be taken until the debt on it is paid off. Chichester is still a more considerable port than many people are aware of, and the benefit to Littlehampton, and the villages and towns lying to the east of it, should prove considerable, as, to many of these, the present detour through Arundel renders heavy goods transport by road impracticable.

LITTLEHAMPTON FERRY AND THE PROPOSED NEW BRIDGE.—A view of the existing hand-operated "chain-bridge"—i.e., ferry—which necessitates vexatious delay, either in waiting for the "operators," or in making the long detour and climb round by Arundel. The pleasant level road along the coast line would be rendered available to all traffic by the new bridge.

MOTOR FISHING SMACKS—THE RETURN OF NAPIER MAJOR.

Mr. Hearman. Skipper Evans. The Crew.

Skipper Evans, his amateur Mate, Mr. W. Hearman, and his "crew," who have just returned with Napier Major after their long coasting trip.

Napier Major putting into Westminster on Saturday after her memorable voyage.

NAPIER MAJOR'S RETURN.

ALL the motoring world, and especially that part of it whose pleasure or occupation takes a nautical turn, has been interested in the remarkable voyage of this 45-ft. cruiser, which the fertile mind of Mr. S. F. Edge conceived, and the energy of "Captain" Evans accomplished. Since April 20th—when the crew of four received a hearty send-off from Temple Pier—until Saturday last, when they all returned safe and sound to the same place, Napier Major has been making her voyage up and down the coast, a voyage of breezy incidents—well told by her captain in a letter which we published some time ago*—which was protracted beyond all ordinary running time by the fulfilment of one of the objects of the cruise.

It was not only to demonstrate to the world that a properly-built motor boat, such as, for instance, our British engineers and boatbuilders know how to construct, would prove a seaworthy cruiser—a supposition which the mere voyage of the boat itself has shown to be beyond all doubt—but it was also, and it was by no means incidentally also, the project of Mr. Edge to gain first-hand information as to the needs of our fishermen along the coast. With this end in view Napier Major put in at over thirty ports on her return journey—the outward trip being of the nature of a non-stop run—and Mr. A. F. Evans instituted enquiries relating to the requirements of our fishing fleets with regard to self-propelled fishing smacks.

At three of the ports of call, meetings were held for the discussion of the subject, and here, as elsewhere, Mr. Evans was able to glean valuable information which will be immediately acted upon by his firm (S. F. Edge and Co.), for whom Messrs. Napier and Son will build a special type of engine at their newly-acquired works near Thames Ditton. Concerning the actual facts and figures relating to motor fishing smacks, Mr. Evans had,

when we met him immediately upon his return, much interesting matter to relate. The fishing interests are, says Mr. Evans, in the hands of a shrewd, hard-headed, but withal, keen body of men, and although he could but show them a yacht fitted with a yacht's motor, yet what that boat had done was sufficient for them, and they turned out to look at it—not as sightseers, but as business men. What they saw convinced them of the suitability of motor propulsion for their smacks. These smacks are, it appears, all more or less of a kind, and run to about 60 or 70 feet in length, having about 22 feet beam. Their speed would have to be $8\frac{1}{2}$ to 9 knots in order to enable them to compete with steam drifters and get their catch into port from a distant ground while it was fresh.

The daily work of such a boat is not continuous. It will steam out to the fishing ground, which may be miles away. Arrived there, it will either shoot the nets under power or, if the wind is right, the engine will not be wanted for this operation. If it is used, however, it will have to run very slowly, because laying the nets is not a full-speed job. There will then be several hours to wait before the nets will be hauled up and the homeward journey commenced.

An engine for such a boat, considers Mr. Evans, should be about 80-h.p., for it must be capable of doing all the work necessary—the smack owners refusing to countenance anything in the nature of an "auxiliary" engine. The plant—which must, of course, consume paraffin as fuel—would probably be berthed in the cabin which is situated aft under the deck, and the whole machinery, which would include a good reversing gear, must obviously be made very substantial indeed. Existing craft would, of course, be adapted to suit the engines.

Altogether, then, it looks as if there is a well-defined field for this work, and Mr. Evans is to be congratulated on the success of his trip, no less than is Mr. Edge on his

(* See AUTOMOTOR JOURNAL, May 20th, 1905.)

pioneer enterprise, on behalf of the entire industry, in organising it. As to the boat on which it was carried out, Napier Major, she has returned in perfect condition, and the engine is running even better than when it started to pile up that eleven million revolutions which a mathematical mind has attributed to its share of the

work. The cruise which extended over about ten weeks has covered a distance of about 2,125 miles, and consumed 450 gallons of petrol. No repairs were necessary *en route* or afterwards, and the only replacements consisted of four ignition plugs and an exhaust valve, even the latter being more expedient than necessary.



MOTOR BOATING.

Motor Yacht Club né Marine Motor Club.—The Motor Yacht Club is the new title selected by the Marine Motor Club in consequence of the registration at Somerset House of the latter title, which took place just at the time of the formation of the new club. The secretary is Mr. Wm. Morris, who was assistant secretary for 10½ years to the Kildare Street Club, Dublin.

The ten vacancies on the club committee, Mr. Lionel de Rothschild having been appointed hon. treasurer, have been filled as follows: The Hon. J. Scott-Montagu, Messrs. Sidney Tebbutt, Lorne Currie, T. Thornycroft, E. A. Whitehead, E. H. Hamilton, F. P. Armstrong, S. F. Edge, G. Foster Pedley, and R. Denys Dundas. At a joint meeting of the racing committees of the club and the British Motor Boat Club, steps have been taken to promote the best interests of the sport by arranging the dates of the events of the two clubs so as not to clash. By this means a joint programme has been made up by which a series of races will be held in the neighbourhood of the Solent from August 7th to 12th. In addition, there will be races at Sea View on August 1st, the reliability trials on August 2nd and 3rd, and two races in connection with the Royal Victoria Yacht Club on August 15th. The Windermere Regatta proposition has been abandoned, and the prize money which has been subscribed for this event will swell the funds for the Solent Week.

Reliability Trials.—Mr. J. H. S. Phillips has entered a 42-foot cruiser with a paraffin engine in Class 7, making the fourth boat in this class, all of which are over 45 feet. Messrs. Perman and Co. have also entered in the same class a 40-foot with a paraffin engine and two 30-foot boats in Class 4. Messrs. De Dion Bouton have entered two boats in Class 3. The total number of entries is 35. We regret, however, to have to record that Messrs. J. W. Brooke and Co. find it impossible to enter Baby II. owing to the accident to her, which we recorded the week before last, whilst the firm are so crowded up with work that it is impossible for them to get another boat ready in time.

The following is a full list of entries, comprising 35 in all, five of which will use paraffin as fuel, one steam, and one producer gas, the rest employing petrol:—

Class 1.—Yachts' dinghies (clench), max. length 15 ft.

No entries.

Class 2.—Yachts' launches (clench or carvel), max. length 20 ft.

Thornycroft (1), Ashton and Kilner, paraffin (1), Grove, Gutteridge and Co. (1).

Class 3.—Yachts' launches (clench or carvel), max. length 25 ft.

Simpson Strickland (1), A. G. Sentiman (1), De Dion (1), J. W. Stocks (1), Mitcham Motor Company (1), P. C. Crossley (1), Vosper and Co., paraffin (1), Thornycroft (1), Stirling (1).

Class 4.—Yachts' launches (clench or carvel), max. length 30 ft.

Maudslay Motor Company (1), J. M. Gorham (1), Stewart Foster (1), Simpson Strickland, steam (1), Perman and Co. (2), Lieut. H. G. Vereker (1), Wolseley Company (1), Thornycroft (1), Rolls and Co. (1), Lord Royston (1), Parsons Motor Company (1), E. A. Chard (1).

Class 5.—Unrestricted vessels not exceeding 25 ft. in length.

No entries.

Class 6.—Unrestricted vessels exceeding 25 ft. in length.

Lord Howard de Walden (1), Capt. R. T. Dixon (1), J. Percy Dean (1).

Class 7.—Sea-going motor yachts with permanent cabins.

S. F. Edge (1), Woodnutt, paraffin (1), J. H. S. Phillips, paraffin (1), Perman and Co., paraffin, (1), Thornycroft, paraffin (1), Producer Gas (1), Kensington Motor Boat Company (1).

Classes 1 to 4 inclusive are subject to restrictions of beam and freeboard under the M.M.A. rules.

British Motor Boat Club.—At Burnham-on-Crouch, on Saturday last, a programme of three events had been arranged by the club. The main attraction, however, had necessarily to be abandoned as, of the racing boats expected, only Mr. A. Lee Guinness' Mercedes IV., which secured the Calais-Dover Race, was in evidence. The 150-h.p. 12-cylinder engine of the Defender broke down on the way round to Burnham, whilst Javelin, the other high-powered boat, engined by Blake and built by Hart, Herden and Co., did not arrive in time. The event for boats over 20 feet up to 35 feet was secured by Mr. George Neill's "Z," which just saved her time from Mr. W. Mail Green's Takumono, the British boat which took part in the Dover-Calais Race and also was in strong evidence at Monaco. The Takumono, later on in the afternoon, won the handicap. Mrs. Walker Munro has presented to the British Motor Boat Club a valuable Challenge Cup, which will be raced for in the Solent on August 7th, on the occasion of the visit of the French Fleet to this country, and the cup has been appropriately named by the donor the "Entente Cordiale" Cup. The cup will be allotted to an event for Racing Boats not exceeding 40 ft., built or owned in England or France. No time allowance will be given, and the competitor winning the cup twice in succession, or three times in all, wins the cup outright. Other races will be given on Saturday, the classes catered for being boats not exceeding 30 ft. over all, M.M.A. restriction, rating and time scale, for a 15 guinea Cup, presented by Mr. E. Owers; boats not exceeding 25 ft. over all, M.M.A. restriction, rating and time scale, and a handicap for *bonâ fide* cruisers. In addition to the cups, over £65 will be given in prizes.

Aix les-Bains Motor Boat Races.—In connection with the Aix-les-Bains Motor Meeting, a series of events on Lake Bourget took place on Sunday and Tuesday last. On the first day in the racing section, La Rapiere distinguished itself by covering 93.6 kiloms. in 2h. 21m. 38s. (= to 39.63 k.p.h.). In the cruiser class, "Forces-Pas" in Class 3 (8 to 12 metres), made the best time of the day over 86.8 kiloms., viz., 2h. 32m. = 32.11 k.p.h. On the second day the mile and kilometre speed races were arranged for the motor boats, and the contest for the Coupe Quinones de Leon was also on the programme.

Boulogne-Folkestone.—Entries are beginning to mount up for this important race, taking place on July 15th. Six racers were entered up to the end of last week, including Napier II., thirteen cruisers including Napier and Hutton II., and four fishing boats.

At the Kiel Regatta Motor Races, which were on the

programme this week, Lord Howard de Walden's Napier racing launch was, in the unavoidable absence of the owner, arranged to be steered by Mr. Arthur Macdonald, Mr. J. Pugh acting as engineer. Napier II., which is at present at Messrs. Yarrow's works undergoing certain alterations and tests, it was found impossible to get ready in time for this meeting.

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RACES, RECORDS, AND TRIALS.

Webb Jay on the White steamer, which made such splendid time.

C. Basle driving H. L. Bowden's 90-h.p. Mercedes.

RACING ON THE NEW AUTOMOBILE TRACK, MORRIS PARK, NEW YORK—THE INAUGURAL MEETING.

Welbeck Races.—The winners at this meeting, of which we gave particulars last week, are officially announced as follows:—

Scratch Events, Gold Medal.—E. M. C. Instone.

Speed Judging, Gold Medal.—R. M. Wright.

Speed Judging open to Visitors.—1st prize, W. F. Hutchinson, Mansfield; 2nd, G. Hutchinson, Mansfield.

The following is a list of cars with particulars of time and the nearest guesses in the Speed Judging Competition:—

Name	Car.	Actual m.p.h.	Guess.
Instone, E. M. C. ...	30-h.p. Daimler ...	62.2	46.0
Hardy, C. ...	35-h.p. „ ...	55.5	45.0
Bolton, F. A. ...	30-h.p. „ ...	49.3	37.5
Hutchinson, W. M. ...	30-h.p. „ ...	44.0	42.0
Prestwich ...	30-h.p. „ ...	43.5	44.5
Blaimires ...	29-h.p. Rischard ...	49.3	43.0
Pullinger, T. C. ...	16-h.p. Humber ...	43.5	39.5
Hardy, E. ...	14-h.p. Minerva ...	39.1	38.0
Arnott, E. H. ...	14-h.p. „ ...	39.9	32.0
Johnson, C. ...	15-h.p. Orleans ...	38.7	35.25
Jolliffe, T. A. ...	16-h.p. De Dietrich ...	31.3	27.0
McCraith, M. ...	14-h.p. Leader ...	30.5	28.0
Hogarth, Dr. ...	10-h.p. Peugeot ...	30.8	33.0
Wright, R. M. ...	8-h.p. Wolseley ...	30.5	30.0

Louis Chevrolet on the 90-h.p. Fiat, on which he made the mile record.

Barney Oldfield on the sharp-nosed Green Dragon.

The Brighton Race Meeting.—A preliminary announcement of the rules and classes have now been issued by the A.C.G.B.I. in connection with this important racing fixture, taking place from July 19 to 22. We publish these overleaf, and it will be noticed that there are a very large number of scratch events for cars of similar types. These are lettered from A to Z and AA to WW, and embrace most of the best known types of vehicles of which there are any considerable number in this country. The element of skill in driving must, therefore, enter largely into these contests, and it will be interesting to watch the different methods adopted by the various amateurs, who it is hoped will bring forward their cars to take part in the racing. Entries close on July 13th, and it is notified that no car which has competed in a competition for racing cars in the years 1903, 1904, or 1905 is eligible for the tourist events. Cars carrying a manufacturer's or dealer's general identification mark will not be allowed to compete. In the tourist events no actual times, it has been decided, will be published, which of course must necessarily detract from the general interest of the meeting, but this drawback will be partially remedied by the announcement of an order of merit, which will be given with numerical values.

BRIGHTON RACE PROGRAMME.

Tourist and Auto Cycle Handicap. Entrance fee 5s. Machines not exceeding 80 mm. by 80 mm., or the equivalent volume swept out.

Racing Auto Cycle Scratch Race. Entrance fee 10s. Machines not exceeding 110 lbs. in weight.

Tourist Events.

The distance to be covered will be about one mile. There will be no race unless there are six entries in each event, and there will be no second prize unless there are four starters.

Scratch Races

For standard cars of the following types. The club will be prepared to consider events for other standard makes of cars, provided sufficient entries be received by 6 p.m. on Thursday, 13th July. These races will be held on July 19th and 21st:—

Event.	Entrance Fee £1.	Event.	Entrance Fee £2 2s.
	h.p.		h.p.
A	*6 De Dion.	Z	12-16 Peugeot.
B	*6 Oldsmobile.	A A	12-16 Spyker.
C	*6 Peugeot.	B B	14 Renault.
D	*6 Wolseley and Siddeley	C C	15 Darracq.
E	*7 Panhard.	D D	15 Panhard.
F	*7 2-cylinder Star.	E E	15 Star.
G	*7½ 2-cylinder Humber.	F F	15-18 Napier.
H	M.M.C.	G G	16 Fiat.
I	8 Renault.	H H	16 Martini and Rochet-Schneider.
K	*8 Rover.	I I	18 C.G.V.
L	*8½ Cadillac.	K K	18 Siddeley.
	Entrance Fee £1 10s.	L L	20 Dennis.
M	9 Darracq.	M M	24 De Dietrich.
N	9-11 Clement.	N N	24 Germain.
O	10 Duryea.	O O	24 Thornycroft.
P	10 Lanchester.	P P	28 Daimler.
R	10 Panhard.	R R	30 Daimler.
S	10 Wolseley.	S S	30 Renault.
T	10-12 2-cylinder Argyll.		STEAM CARS.
U	10-12 B.A.C.S.		Entrance Fee £1 10s.
V	12 Arrol-Johnston.	T T	6 Serpollet.
W	12 De Dion.	U U	10 Turner-Miesse.
X	12 Napier.	V V	10 White.
Y	12 Siddeley.	W W	15 White.

* These cars must carry two passengers, and all others in the list four passengers.

Event and Fee.

- A 2, £1.—Cars the list price of which does not exceed £200 (two passengers).
 B 2, £1 10s.—Cars over £200 and not more than £350. Cars listed at not more than £250 must carry two passengers, and those listed at more than £250 must carry four passengers.
 C 2, £2.—Cars with chassis costing from over £300 to £400 (four passengers).
 D 2, £2.—Cars with chassis costing from over £400 to £500 (four passengers).
 E 2, £2 10s.—Cars with chassis costing from over £500 to £600 (four passengers).
 F 2, £2 10s.—Cars with chassis costing from over £600 to £700 (four passengers).
 G 2, £2 10s.—Cars with chassis costing from over £700 to £800 (four passengers).
 H 2, £2 10s.—Cars with chassis costing from over £800 to £900 (four passengers).

Racing Events.

There will be no race unless there are three entries, and there will be no second prize unless there are three starters.

I 2. £5.—Scratch race from a standing start over a measured mile for cars weighing not more than 1,000 kilogs. (19 cwt. 2 qr. 20 lb.). The car doing the best average time for three runs will be adjudged the winner.

K 2. £5.—Scratch race with a flying start over a measured mile for cars weighing not more than 1,000 kilogs. The car doing the best average time for three runs will be adjudged the winner.

L 2. £5.—Handicap Sweepstake of £5 each for racing cars weighing not more than 1,000 kilogs., which have run in any of the racing events, the winner to receive 75 per cent. and the second 25 per cent.

Tourist Car Handicaps.

M 2. £1.—Handicap Sweepstake of £1 each for cars which have run in any of the events (A to W W). The winner to receive 75 per cent., and the second 25 per cent.

N 2. £1.—Handicap Sweepstake of £1 each for cars which have run in any of the events A 2 to H 2.

Daily Mail 100-Guinea Challenge Cup. Entrance fee, £5.—Scratch race with a flying start over a kilometre for cars weighing not more than 1,000 kilogs., irrespective of motive power. Unless the kilometre is covered under 40 secs. the Cup will not be awarded. Each car will be allowed three attempts. Present holder: Baron de Forest.

Autocar Challenge Cup. Entrance fee, £5.—For cars of any power or weight propelled by any form of motive power. If there are not three starters the Cup will not be awarded unless the kilometre is covered in not more than 40 secs. Each car will be allowed three attempts. Present holder: Baron de Forest.

The events A—W W will be run on the 19th and 21st of July.

The events under price classification A 2—H 2 will be run on the 20th and 22nd July.

The racing events will be run each day.

The handicap events will be run on the 22nd July, and will be based on the times made at this meeting.

Blackpool Race Meeting.—The provisional programme for the Blackpool Meeting, taking place on July 27th and 28th, is to hand, entries for which close on July 20th. No car which has taken part in a competition for racing cars in the years 1903, 1904, or 1905 will be eligible to compete in events A, B, D, E, G.

The Blackpool Corporation will give £100 in addition to the prizes offered, for the highest speed over 95 miles per hour, which will be increased to £250, provided a world's record for the flying kilometre be made. The present world's record is 21½ secs.

The following are the events:—

Thursday, 27th July.**Scratch Events.**

Event A. Fee £3 3s.—Cars in racing trim. Chassis price £1,000 to £1,250. Course about 1½ miles, standing start.

Event B. Fee £3 3s.—Cars in racing trim. Chassis price £1,250 to £1,500. Course about 1½ miles, standing start.

Event C. Fee £5 5s.—Race (flying start) over a measured mile, for cars weighing not more than 1,000 kilogs. (19 cwt. 2 qr. 20 lb.). The car doing the best average time for three runs will be adjudged the winner.

Friday, 28th July.

Over the flying kilometre for cars in racing trim.

Event D. Fee £3 3s.—Chassis price £1,000 to £1,250. The car doing the best average time for three runs will be adjudged the winner.

Event E. Fee £3 3s.—Chassis price £1,250 to £1,500. The car doing the best average time for three runs will be adjudged the winner.

Event F. Fee £5 5s.—For cars weighing not more than 1,000 kilogs. (19 cwt. 2 qr. 20 lb.). The car doing the best time will be adjudged the winner. Each car will have three runs.

Event G (Lancashire Handicap). Fee £1.—Handicap race over 1½ miles for cars owned by members of the following clubs:—Liverpool Self-Propelled Traffic Association, Blackpool A.C., Manchester A.C., East Lancashire A.C. Entrants must have been members of their club prior to June 15th, 1905, and likewise have owned the car entered, prior to that date. This event may be run on either or both days at the discretion of the club.

It has been decided by the Blackpool Town Council that the races are to be held on the outer promenade instead of on the carriage-way, where they were run off last October. Under this arrangement the carriage-way will be available for vehicular traffic along the front as usual, in similar manner to the arrangements at Nice, although in the case of Blackpool the racing roadway is considerably wider.

The Club Competition Rules.—The reception of the competition rules of the club by the affiliated clubs in respect to "closed" competitions has been so adverse, that wiser councils have, we are glad to announce, prevailed at the Automobile Club, judging by the resolutions which were passed at the Club Races Committee last week. It was determined that the competition rules should be suspended from application to closed competitions pending revision, all the clubs being notified that the A.C.G.B.I. relies upon them to see that no persons who have been suspended or barred from competitions under the rules of the A.C.G.B.I. be admitted to any closed competitions held by the clubs respectively. The rules are to be immediately reconsidered so far as closed competitions are concerned, and it is proposed to get out a set of model regulations forthwith, the officials of the various local clubs being invited to a conference to consider the draft when ready.

Tourist Trophy Race.—Entries now amount to fifty-eight. The latest cars entered are a Mors by Mr. Louis Carle, a Vinot and Dequingand by Mr. C. H. Wigan, and two Arrol-Johnston cars by Mr. John S. Napier.

THE Padley Wood Hill-climb of the Sheffield A.C. takes place to-day, Saturday.

GORDON-BENNETT RACE.

Apparently, it was a very peculiar accident that delayed Mr. Stead on his Richard-Brasier car in the French Eliminating Trials, and one which was indirectly caused by the injury he sustained in one of the big races last year. Even while practising recently, he found that the seat hurt his back—doubtless as a result of the mishap to which we have referred—and in order to make himself more comfortable, he therefore tied his umbrella coat into a bundle and used this as a cushion on the morning of the race. Unfortunately, his improvised cushion was jolted out when the car was travelling extremely fast, and it got entangled in one of the side-chains, wedging itself tightly in between the chain and the sprocket, badly bending the latter. A delay of about an hour was caused in straightening out the sprocket, and in spite of this Mr. Stead came in twelfth.

American Motor Record.—Last Sunday, it is cabled from New York, Mr. Guy Vaughan, on a 40 h.-p. Decauville car, established a new world's record at Long Island, for 1,000 miles continuous running. He covered this distance in 23h. 33m. 20s., beating Wridgeway's previous record, on a Peerless, of 35h. 50m. 1s. Vaughan in the 24 hours covered 1,015½ miles; Continental tyres were employed.

Aix-les-Bains Motor Meeting.—The great feature of the Aix-les-Bains motor meeting was the tourist car trial, which extended over three days, six journeys being made during this period, one in the morning and one in the afternoon each day. The meeting was mainly organised under the auspices of the Rhone A.C., and out of 39 entries, 29 cars actually started, including Baron Henri de Rothschild, on his 60-h.p. Mercedes. The distance for each stage varied from 146 to 180

kiloms. The cars were classed by cylinder capacity, ranging from 2½ to 7½ litres, subject to a maximum weight for each class. On the first day, June 20th, the downpour of rain was so fearful that the morning run had to be postponed, and the cars made their first start in the afternoon, when the sun had become more gracious. Most of the itineraries traversed during the 1,000-kilom. run were a severe strain upon the cars and the brakes.

On the second day the two runs took place in brilliant weather. Twenty-six started in the morning, of which twenty-four arrived, and in the afternoon twenty-four started and arrived back at Aix-les-Bains, the De Dion team, with Cormier leading, doing excellently throughout. On the third day glorious weather was again experienced. During this day's run M. Desgeorges, on his Darracq, attempted to take a corner down a steep mountain road too sharply, with the result that he experienced the now fashionable method of having an accident by skidding over a precipice, and landing himself and passengers in the branches of some friendly trees.

The trial included two special mountain climbs, viz., the Col de Plainpalais (14 kiloms.) and the Col du Frene (6 kiloms.), the results being arrived at by taking weight and cylinder capacity into consideration in conjunction with the speed attained. The tyres almost throughout had to undergo the most terrible strains, but with very few exceptions they came out with flying colours, the Continentals, Michelins, and Dunlops about equally distinguishing themselves in proportion to their numbers.

BARON DE ROTHSCHILD has notified the Rhone Club that for next year's Aix-les-Bains events he will present the two cups which he originally gave for competition at Nice, the first being reserved for the Tourist Trial and the second for the Hill-climbing Test.

Herkomer Cup.—Entries for this event, it is announced, now total up to 73—a very fine record. In this list the following countries are represented:—Germany, 47; France, 9; Belgium, 8; Great Britain, 5; Switzerland, 3; Austria, 1. The cup, it will be remembered, is for tourist cars over a three days' journey of 900 kiloms., two speed tests, and a hill-climbing trial, starting on August 12th, the cars being on exhibition at Munich the day before.

Paris Breslau.—For 1906, *L'Auto* announces the organisation of a Tourist Car Competition between Paris and Breslau, in which all entered cars will be carefully controlled from first to last under the method adopted in France of checking by maximum and minimum times at frequent intervals. The idea has emanated from Baron Klock, Secretary of the Silesian A.C., of which province Breslau is the capital. As the event will be an international one, and the distance about 1,500 kiloms., no doubt a good entry list will be forthcoming.

THE competition for electric vehicles from Paris to Deauville, *via* Saint Germain, Mantes, Evreux, and Lisieux, has been definitely fixed to take place on August 10th and 11th.

CLUBS AND ASSOCIATIONS.

Photos by Mr. H. Luff Smith.

MOSELEY HOSPITAL MOTOR GYMKHANA.—1. Balancing: Mr. A. E. Crowdy manipulating his 8-h.p. Wolseley car. 2. Mr. H. Hemmings balancing his 12-h.p. Lanchester. 3. The Coach-house Race. One of the lady competitors takes a 6-h.p. Wolseley car successfully through the test. 4. Ladies' Passenger Race between a Lanchester and a Wolseley car.

Motor Gymkhana.—Saturday afternoon, June 24th, was the occasion of a large motor gymkhana which was held in aid of the funds of the Moseley Hall Convalescent Hospital for Children. The proceedings took place in the grounds of the hospital, and were witnessed by nearly 3,000 persons, all of whom evinced a lively interest in the events. There were sixteen competitors altogether, most of whom were members of the Midland A.C. The following are the results of the various events:—

Starting and Stopping Test.—1st, A. J. W. Millership, 6-h.p. Wolseley; 2nd, G. H. Lanchester, 12-h.p. Lanchester.

Balancing Test.—1st, H. Patterson, 7-h.p. Swift; 2nd, H. J. Bourne, 7-h.p. Bourne.

Ladies' Passenger Race.—1st, A. E. Crowdy, 8-h.p. Wolseley; 2nd, G. Lanchester, 12-h.p. Lanchester.

Coach House Race.—1st, G. Lanchester, 12-h.p. Lanchester; 2nd, Miss Larkins, 6-h.p. Wolseley.

Mr. I. H. Ryland acted as judge; Messrs. Cedric P. Type and W. T. Stokes as stewards; and Messrs. A. G. Johnson, M. C. Blewitt, and Arthur Cox as timekeepers.

Blackheath A.C.—A very enjoyable afternoon was spent by about forty members and friends at Knockholt on Saturday last, when a cricket match was played against Mr. Warmesley's eleven, resulting in a close finish, the Blackheath Automobile Club losing by only 10 runs.

The Club's hill-climb, at Ightham, takes place on July 8th.

Eastern Counties A.C.—The club held its first gymkhana at the Portman Road Recreation Ground, Ipswich, on June 21st. The weather was delightful, and a large and appreciative number of spectators were kept interested and amused for upwards of four hours. Lord Russell acted as judge.

Excellent prizes were awarded, presented by Mrs. Godolphin Milbank, of Shelton Lodge, Ipswich. The band of the Suffolk Royal Garrison Artillery played a bright selection of music at intervals, tea being served during the afternoon. There were eight events on the cards, among them:—

Glass of water race, won by Dr. Moseley (6 h.-p. de Dion).
Tortoise race, won by Mr. H. W. Bloomfield (10 h.-p. Boyer).
Musical cars, won by Mr. J. R. Egerton (8 h.-p. de Dion).
Vegetable race, won by Mr. J. R. Egerton (8 h.-p. de Dion).
Turk's head and pig sticking competition, won by Mr. W. P. Burton (18-h.p. Chenard Walcker).

Race for challenge cup, presented by Messrs. Botwood and Egerton, won by Mr. Snowdon with his 16 h.-p. Argyll.

Victoria Cross race, won by Mr. J. R. Egerton (8 h.-p. de Dion).

East Surrey A.C.—The July meeting and run of the club takes place on the afternoon of July 8th to Woodhurst, Crawley, Sussex, by the invitation of Capt. R. H. Rawson and Lady Beatrice Rawson, the club being specially invited to meet the members of the Ladies' A.C.

Herefordshire A.C.—On June 24th the club met the South Wales A.C. at Pontywall Hall by the invitation of Capt. Hughes Morgan, who entertained the party of about 200 to a sumptuous lunch. The day was gloriously fine, and about forty cars, besides bicycles, turned up.

Ladies' A.C.—On Saturday last nearly sixty members of the club and their friends, on about twenty cars, visited Mrs. Gerard Leigh—one of the vice-presidents—at her country home, Kidbrooke Park, Forest Row, Sussex.

The day was ideal for motoring, as the journey over the thirty-seven miles between London and Forest Row was made under cloudy skies, while the gardens and grounds of Kidbrooke were seen at their best beneath the rays of an afternoon sun.

Unfortunately five of the members were caught in a police trap near East Grinstead, but no other "accidents" *en route* were reported.

Among those present were:—Evelyn Lady Alington, Miss Antrobus, Mr. and Mrs. Foyster Bowen, Mr. and Mrs. Buttemer, Mr. and Mrs. Campbell, the Hon. Mrs. Corbet, Muriel Countess

De La Warr, Mr. and Mrs. Elliot (of Holme Park), Miss Joicey, Mrs. Henry Edmunds, Miss Edmunds, Mr. and Mrs. Copland, Miss Home, Mr. and Mrs. Hartung, Mrs. Guy Hardy, Mrs. Herbert Lloyd, Mr. and Mrs. Manville, Mrs. Bertram Meeking, Mrs. Pigott, Mrs. Todd Newcomb, Mrs. Thrupp, Miss Parke, Miss Evans, Captain and Lady Beatrice Rawson, Miss Stubbs, and Miss d'Esterre-Hughes (the secretary).

Members of the club are reminded that the L.A.C. gymkhana takes place at Ranelagh to-day (Saturday).

The next club run will be on the 8th July to Woodhurst, Crawley, Sussex, the home of Lady Beatrice Rawson, not, as previously announced to Charlwood Park, Surrey.

Lincolnshire A.C.—At the invitation of Mr. C. A. Moreing, of Gate Burton Hall, Gainsborough, 186 members of the club and friends visited him on Saturday last, travelling from all parts of the country on about 60 cars, about 200 guests sitting down to the sumptuous luncheon provided by their host.

Motor Union.—The inter-club meet of the Motor Union at Harrogate, on Saturday last, proved eminently successful. The local organisation had been admirably carried out by the Yorkshire A.C., and the whole programme was concluded without a hitch. A committee meeting was held first at the G.N. Railway Hotel, Leeds, at which more than twenty clubs were represented. One of the principal resolutions referred to the appointment of a Highways Committee, whose object will be to co-operate with local authorities in the prevention of improper use of the highways.

This committee includes the Hon. A. Stanley, M.P., Mr. Ballin Hinde, Mr. G. T. Langridge, Capt. J. A. Cole, Mr. Charles Hardy.

It was also resolved to make arrangements at a London hotel for a special tariff to members and garage accommodation for provincial visitors. At the subsequent lunch, Mr. Stanley spoke on the inconsiderate driving question, and said "that the best way of dealing with the inconsiderate driver, and driving him off the road altogether, will be by means of local clubs."

In the afternoon about thirty cars ran over to Harrogate, and the members attended a reception held by the Mayor at the Kursaal. Later on other cars arrived, and in the end there were nearly 200 cars present. Mr. E. H. Hepper (chairman of the Yorkshire A.C.) presided at a dinner in the evening, which was attended by about 120 persons, including many ladies. In proposing the toast of the Motor Union, the chairman referred to the fact that they had a membership of nearly 8,000, and were the largest automobile organizations in the world.

Scottish A.C.—The annual general meeting of the club was held in Edinburgh last week, when Professor Dawson Turner, a vice-

president of the club, in the absence of Sir J. H. A. Macdonald, Lord Justice Clerk of Scotland, the president of the club, occupied the chair.

On the motion of Dr. Blair (Jedburgh), seconded by Mr. John Adam, the Right Honourable Sir J. H. A. Macdonald, K.C.B., Lord Justice Clerk of Scotland, was re-elected president of the club for the ensuing year.

The General Council was constituted as follows:—Henry M. Napier (chairman), John Adam, Dr. Blair, James Burns, J. Dall Crosbie, J. B. Talbot Crosbie, W. H. Kingsbury, George Macmillan, J. H. Irons, N. D. Macdonald, D. P. MacLagan, J. R. Nisbet, J. H. Paterson, H. Prosser, J. M. Ross, W. L. Sleight, J. B. Shanks, Stephen Smith, Robert J. Smith (hon. general secretary), William Weir.

The following noblemen and gentlemen were re-elected, by the General Council, vice-presidents of the club:—His Grace the Duke of Argyll, K.T., G.C.M.G., G.C.V.O., LL.D.; His Grace the Duke of Sutherland, K.G.; the Most Hon. the Marquess of Tweeddale, K.T.; the Most Hon. the Marquess of Ailsa; Colonel the Most Hon. the Marquess of Breadalbane, K.G.; the Most Hon. the Marquess of Linlithgow, K.T., G.C.M.G., G.C.V.O.; the Right Hon. the Lord Napier and Ettrick; the Right Hon. the Lord Saltoun; Colonel the Right Hon. the Lord Blythswood, LL.D., A.D.C.; the Right Hon. the Earl of Dalkeith, M.P.; Sir James Bell, Bart.; Sir Charles Cameron, Bart., M.D., LL.D.; Sir Archibald A. Campbell, Bart.; Sir Samuel Chisholm, Bart., LL.D.; Sir Lewis McIver, Bart., M.P.; Sir James Miller, Bart.; Sir James Pender, Bart., M.P.; Sir John Murray, K.C.B., LL.D., D.Sc., Bh.D., F.R.SS. (L. & E.); Sir John Ure Primrose, Bart., the Hon. the Lord Provost of Glasgow; Professor Dawson Turner.

Society of Motor Manufacturers and Traders.—The third annual general meeting of the society was held on June 22nd, at the Hotel Cecil, Mr. Sydney Straker, the president, in the chair.

The report and accounts of the committee of management, which were unanimously adopted, showed that the membership of the society had increased in the year by 100 new members, and that £5,000 had been invested, and £2,000 placed to deposit account. The profits of the Motor Show at Olympia were £2,684.

The following were elected members of the new council:—Messrs. H. Austin, H. G. Burford, G. A. Burls, A. Brampton, T. B. Browne, J. M. Brooke, A. Burgess, T. Clarkson, F. Coleman, T. G. Chambers, G. Du Cros, H. Du Cros, Jr., S. F. Edge, E. Gascoigne, A. C. Hills, E. M. C. Instone, Chas. Jarrott, Claude Johnson, H. Johnson, E. Kenealy, Frank Lanchester, Percy Richardson, Chas. Sangster, Fred R. Simms, Harry Smith, Stanley Spooner, Sidney Straker, H. Sturmeay, H. J. Swindley, W. Geo. Williams.

It was formally announced that the Prince of Wales had again consented to become patron of the society's show.

Photos by Mr. P. W. Elkington.

THE EASTERN COUNTIES AUTOMOBILE CLUB GYMKHANA AT IPSWICH.—1. In the enclosure; the cars waiting their turn. 2. Mr. Burton leaving the "motor house" in the Vegetable Race. 3. Start for the Tortoise Race. 4. "Pig Sticking."

MOTOR CYCLING.

RESULT OF THE INTERNATIONAL CUP RACE FOR MOTOR CYCLES.

Place.	Driver.	Country.	Machine.	Engine.	Bore and Stroke.	Ignition.	Tyres.	Total Net Time. (5 laps = 167 miles.)	M.P.H.	Best Time.	
										$\frac{1}{2}$ kil.	1 kil.
1	Wondrick	Austria	Laur.-Klem.	Laur.-Klem.	72 x 85	M	Continental	h. m. s.	54	18 $\frac{1}{2}$	38
2	Giuppone	France	Peugeot	Peugeot	80 x 86	A	Dunlop	3 5 15	48	19 $\frac{1}{2}$	38 $\frac{1}{2}$
3	Demester	France	Griffon	Z.L.	85 x 85	A	Michelin	* 3 35 3	52.5	16 $\frac{1}{2}$	34 $\frac{1}{2}$
	Nikodem	Austria	Puch	Puch	76 x 80	M	Continental	Four laps.	—	19 $\frac{1}{2}$	38 $\frac{1}{2}$
	Collier	England	Matchless	J.A.P.	76 x 95	A	Dunlop	Three laps.	—	19 $\frac{1}{2}$	39 $\frac{1}{2}$
	Cissac	France	Peugeot	Peugeot	80 x 86	A	Dunlop	Three laps.	—	19 $\frac{1}{2}$	39 $\frac{1}{2}$

A Signifies accumulators; M magneto.

* Disqualified for second place because Demester changed a wheel during the race.

There were 12 starters; 10 finished 1st lap, 9 finished 2nd lap, 8 finished 3rd lap, 5 finished 4th lap, and 3 finished the race.

All engines had twin cylinders except those of the German team.

ON Sunday last (25th inst.), for the second year, twelve competitors, representing four countries—France, Germany, England and Austria—started for this race over the Dourdan course.

The course is situated south-west of Paris, through St. Arnault—where the start took place—Dourdan, La Forêt le Roi, Authon, and Ablis. Controls were established at St. Arnault, Forêt le Roi, Ablis, and Courville, at which places a total of 23m. were spent on each round. The complete course comprises five laps, which is equivalent to a distance of 167 miles.

Tyre troubles were, as usual, responsible for many failures. Franklin broke an inlet-valve, Campbell had trouble with his valve-operating gear and his ignition, and Collier suffered from his tyres, so that the English team fared badly. Toman (Austria) did not complete the first round, being thrown from his machine. Mueller and Genzel (Germany) both stopped short of the second round. None of the Germans did well, and all found it difficult to start their powerful single-cylinder engines. Demester was disqualified from second place because he changed a wheel during the race.

The following was the order of starting—the results being given below in tabular form:—1, Demester (France); 2, Mueller (Germany); 3, Campbell (England); 4, Toman (Austria); 5, Giuppone (France); 6, Genzel (Germany); 7, Collier (England); 8, Nikodem (Austria); 9, Cissac (France); 10, John (Germany); 11, Franklin (England); 12, Wondrick (Austria).

The machines were timed officially over the flying kilom. and flying half-kilom., Demester being credited with the best performance.

100-Mile Passenger Trial for Motor Cycles.—Under the auspices of the Motor Cycling Club a 100 miles' trial for passenger machines—one of the regular features of this club's fixtures—was run off on Saturday last. There were only six starters, viz., J. Van Hooydonk (4 $\frac{1}{2}$ -h.p. Phoenix Trimo), Leny (Humber bicycle and trailer), Lyons (6-h.p. twin-cylinder engine, Trafalgar side-car), E. March (4 $\frac{1}{2}$ -h.p. Phoenix Trimo), Priest (Quadrant Tricar), and H. Densham (Anglian Tricar, 2 $\frac{1}{2}$ -h.p. De Dion engine). The meeting-point was the Clayton Arms at Godstone, and the course 25 miles out to Felbridge, East Grinstead, Forest Row, and Chailey, then returning to Godstone, making a total of 50 miles. In the afternoon the same route was repeated, each 50 miles run having to be an absolute non-stop, the legal limit being strictly

enforced. A start was made at 11 a.m., and with the exception of the dust nuisance the weather was all that could be desired. During the morning run three of the competitors were eliminated—Densham and Van Hooydonk by tyre troubles, and Leny's machine succumbing to the stiff hill-climb at Forest Row. The other three competitors completed the afternoon's 50 miles' run successfully, and the winner was therefore decided by imposing a speed test over a measured distance of 100 yards on the flat and a hill-climb over 160 yards, the rapidity of stopping being a feature in the test. As a result of this final trial March was nominated the winner by three-fifths of a second on the two tests, Priest being second and Lyons third.

Catford Hill Climb.—The hill-climb organised annually by the Catford C.C. for so many years took place this year on Saturday last, at Westerham Hill. Motor cyclists were not allowed to pedal, trusting entirely to their machine. There were four classes, but Class III. was, for want of entries, abandoned. The weather was perfect, although a strong head-wind militated against fast times. The results were as follows:—

Class I.—Private Owners' Handicap. Motor cycles with cylinder capacity limited to 85 by 85 mm., or equivalent volume swept out. Ten entries, of which four machines climbed the hill. 1. (Gold medal) E. W. Goslett (N.S.U.), allowance 10 sec., time 1m. 34s.; 2. (Silver medal) H. G. Partridge (N.S.U.), allowance 12 sec., time 1m. 43s.; 3. W. A. Getting (3 $\frac{1}{2}$ -h.p. J.A.P.), allowance 10 sec., time 1m. 49s.; 4. J. P. Le Grand (3 $\frac{1}{2}$ -h.p. Kerry), allowance 5 sec., time 2m. 51 $\frac{1}{2}$ s.

Class II.—Open handicap for motor cycles, with minimum cylinder capacity 90 by 90 mm., or equivalent volume swept out. 16 entries. 10 starters. 1. (Gold medal) T. Silver, 3 $\frac{1}{2}$ -h.p. Quadrant, allowance 5 sec., time 1m. 27 $\frac{1}{2}$ s.; 2. (Silver medal) W. W. Genn, 2 $\frac{1}{2}$ -h.p. Minerva, allowance 15 sec., time 1m. 34s.; 3. R. M. Brice, 3 $\frac{1}{2}$ -h.p. Brown, allowance 10 sec., time 1m. 34 $\frac{1}{2}$ s.

Class IV.—For fore cars, side cars, and trailers to carry two passengers. Engine power unlimited. 1. (Gold medal) W. Hodgkinson, 2-cyl. J. A. P. Trailer, time 2m. 1 $\frac{1}{2}$ s.; 2. Wilber Gunn, 10-h.p. Lagonda Tricar, 2m. 42 $\frac{1}{2}$ s.; 3. L. W. Bellenger, 2-cyl. Quadrant, 3m. 16 $\frac{1}{2}$ s.

Several objections were raised in regard to the awards, but no alterations were decided upon by the judge. Mr. F. Straight was handicapper, and Mr. A. G. Reynolds acted as judge.



Conversion of Mr. Edison.—This is not a Revivalist notice, but is designed to draw attention to the fact that Mr. Edison, after for so long maintaining that the ideal motor car of the future will be an electric vehicle using for preference, of course, an Edison battery, appears to have changed his point of view. At any rate, he has recently purchased two of the new 15-h.p. White cars, and as he is a good judge of an automobile this is a testimonial of which the White Company are naturally rather proud. They accordingly devote a leading article to the subject in the last number of the *White Bulletin*, which, as usual, is a highly entertaining publication, and as admirably illustrated as ever, one of the

most effective of the photographs showing the big squadron of White cars which took part in the New York automobile parade on the 29th of April last.

Record Airship Flight.—The celebrated Lebaudy airship on Tuesday created a new record flight. It ascended from the ground at 4.25 a.m., and continued in the air without even its guide-rope touching the ground for 3h. 11m., not coming to ground again before 7.36. It was subjected to manoeuvring tests all the time, going to and fro between Moisson and Freneuse, and repeatedly circling the clock tower at the latter place.

arm in arm across the road, they effectually stopped the progress of nearly all motor cars that they encountered. Presumably these people had been misled by some jargon that they had heard about pedestrians having the prior right to the road. In any case we fancy the Highways Act provides for the punishment of such senseless obstruction, and we are glad to learn that their names and addresses have been taken and that proceedings are to be undertaken against them. Probably a substantial fine *and* the costs of the prosecution may assist in bringing them to a healthier state of mind.

It has been calmly reported in the daily press that a cyclist, when riding along a road near Swindon, collided with a motor tricycle, with the result that he was thrown up into the air, turned a double somersault, and landed on his back unhurt. The cyclist has been so impressed by his involuntary performance, that rumour has it that he is now daily practising this trick turn with the assistance of the motor tricycle, and hopes before long to appear as a star performer at the principal London

music halls. A special form of pneumatic protection has, we believe, been fitted to the gentleman's back to assist his practice.

It is stated that a firm of American contractors is arranging for the organisation of a motor 'bus service to the Pyramids next season. It is evidently intended for tourists, for we are informed that an American, who is now doubtless engaged in reading up Egyptology for the occasion, is to accompany the 'buses, and shout information on the objects of interest passed to the passengers, through a megaphone.

A NEW MOTOR CAB.—The "Alexandra"—supplied by Dixi Motors, Limited. The chassis—which is a standard touring model—has a 6-8-h.p. twin-cylinder engine, and a three-speed gear-box. The body, which is constructed under the Whitehouse patents, has several novel features, to which we draw attention on this page.

The "Alexandra" Motor Cab.—Among the motor cabs now being manufactured are those of the Dixi Motors, Ltd., who control the interests of the Dixi touring cars in this country. The cabs supplied by this company—one of which is shown in our illustration—have the same 6-8-h.p. chassis as that of their small touring model. The engine has twin cylinders and a three-speed gear-box of the ordinary sliding spur-wheel type.

The body is constructed under the Whitehouse patents, and is peculiar for the sliding roof and the folding windows and doors, the latter being fitted with a safety device for the protection of the passengers in the event of a collision. A cab constructed on this principle was, it will be remembered, exhibited at the last Agricultural Hall Show. The front glass windows open outward under pressure from the inside, and in doing so lock the doors, so that in the event of an accident the passengers are unlikely to be hurt through breaking of the glass, and they are at the same time prevented from falling out because the doors are locked. The driver's seat is, it will be noticed, situated almost in the centre of the chassis, and a roomy luggage platform is available alongside, in addition to the capacity of the roof, which has a sliding tray to facilitate loading and unloading.

A MONSTROUS but at the same time ludicrous example of anti-automobilist frenzy was provided on the Brighton Road on Saturday last by six individuals (presumably congenital idiots). They are described as having been decently dressed *and* equipped with a certain amount of legal phraseology. Linked

HLH, the Grand Duke Michael of Russia has now secured his second Dennis Car, a photograph of which we are able to give above. The chassis is fitted with a 24-28-h.p. engine and is of the worm-driven live-axle type. His Highness when placing his order paid a visit to the Dennis Works, where he took great interest in the various processes of manufacture, and especially in the action of the automatic tools that are installed.

offence were made of attempting to commit suicide under a motor car.

At the London and District Motor 'Bus statutory meeting, under the chairmanship of Mr. A. A. Campbell Swinton, it was stated that allotments of shares had been made to about 1,230 shareholders. The chairman also announced that a large number of different kinds of vehicles had been examined and subsequently ordered, and that the greater portion of them were to be built in this country, although a good number had to be ordered from Germany to ensure early delivery. The first delivery of these vehicles is to be made about the end of July, and the company hope to have a certain number running early in August. In all cases, the body portion of the vehicles will be made in this country chassis only being procured abroad.

In the above photograph we show a charming specimen of a 30-h.p. 6-cylinder Rolls-Royce Car fitted with limousine body, built to a special design.

THE Local Government Board have notified the Brighton Council that they cannot agree to their application to borrow £4,000 to defray the cost of preparing the Madeira Road for the Motor Speed Trials in July. As generally understood, therefore, this item will be a charge in the ordinary course on the rates.

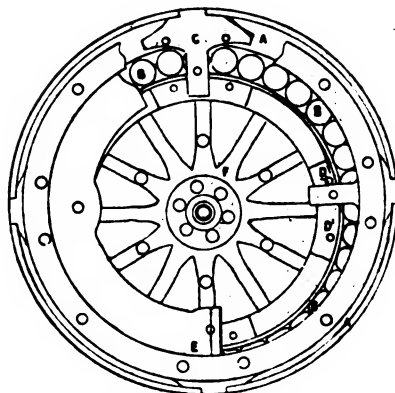
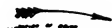
"LONDON Road Car shares rose 6½ on motor traction talk." This interesting piece of news is what appeared in the City column of a daily contemporary, and demonstrates the influence which already the motor omnibus installations are having upon the investment values of the great street omnibus companies of London.

FOLLOWING their visit to the Clement-Talbot Works, which we recently chronicled, a party of about 60 students from the Polytechnic School of Engineering, accompanied by Professor Spooner, recently visited Messrs. Clarkson's Steam 'Bus Works at Chelmsford. Mr. Emerson, in the absence of Mr. Clarkson, acted as cicerone to the party, and a very profitable and enjoyable visit resulted to the young engineers who took part.

THE latest case of attempted suicide under a motor vehicle was committed by a girl of the name of Olive Batsford, in High Street, Cheshunt, on Sunday afternoon, when she deliberately attempted to throw herself under the wheels of an approaching automobile. The driver, however, was too smart for her, and she escaped unhurt. She is now being charged with attempted suicide. Considering the effect that these attempted suicides are likely to have on the unfortunate drivers of the cars selected for their execution, one could almost wish, as we have before suggested, that a special

THE genius who developed the idea, of putting scent into petrol in order to make motor cars more agreeable to their opponents wants to develop his system. As a matter of fact, of course, the idea was based to a large extent upon a fallacy. For where a motor car stinks it is not generally the petrol that is to blame but almost invariably the lubricating oil, or the defective manner in which it is applied. It is now proposed to extend the system to railway travelling, and to apply it as a sort of completion to the proposed colour scheme that the electrified District and Metropolitan line suggest adopting. In that case we may look forward to travelling in lavender, rose, patchouli, or otherwise scented carriages. It is all very nice, but unfortunately what is a scent to one person is very often an egregious stench to another, and that is one of the snags in the proposal.

A novel application of the Ivel motor in France. The photograph shows one of these well-known agricultural machines at work in the vineyards in the South of France, in connection with the National Agricultural Show held at Bordeaux last month. The motor is hauling a 6-furrow plough.



The "Vieo" Spring wheel.

The "Vieo" Spring Wheel.—Important as the tyre question is for touring cars, it is likely to prove vastly more so for industrial vehicles, and it is, therefore, only natural that a great deal of attention should have been given recently to the design of spring wheels of various kinds. A number of these have already been described in our special series of articles dealing with this subject, and many others which have received our attention will be brought before the notice of our readers as space permits—including a similarly treated description of the "Vieo." The above drawings give a good general idea of the construction of the "Vieo" wheel, which has a number of rubber rollers, B, introduced between the "floating" rim, A, and the wheel proper, F, the rollers acting as elastic cushions, but not being called upon to take the "drive"; the "drive" is taken by brackets, C, bolted to the rim, and by stop-pins, D, fixed to the wheel. This wheel, which is the invention of Mr. G. Stewart Ogilvie, is to be put on the market under very favourable auspices, for Mr. S. F. Edge is to act as managing director for "Vieo," Limited, the company which has been formed to work the patent, and Mr. Chas. Sangster has also joined the Board.

PUBLICATIONS RECEIVED.

The Little Guides. Dorset: By Frank R. Heath. London: Methuen and Co. Price 2s. 6d. net.

The Automobile Handbook, 1905. London: The Automobile Club, 119, Piccadilly, W. Price 3s. net.

Dorking. The Official Publication of the District Council. Edited by G. W. May. London: The Health Resorts Association, 2, Gray's Inn Road, E.C.

Tenby. The Official Publication of the Corporation. By Douglas A. Reid, M.D. London: The Health Resorts Association.

Landrindod Wells. Edited by Geo. W. May. London: The Health Resorts Association.

Carnarvon. The Official Publication of the Corporation. Edited by G. W. May. London: The Health Resorts Association.

Harrogate. Published by the Corporation. *Thornycroft Petrol Commercial Vehicles. A Handbook of Instructions to Drivers.* Messrs. John

I. Thornycroft and Co., Limited, Chiswick.

The Empire's Cricketers. Parts III, IV and V. London: The Fine Art Society, Limited, and Dawbarn and Ward, Limited. 1s. net.

Catalogues.

United Motor Industries, Limited. June, 1905. The United Motor Industries, Limited, Poland Street, W.

Motor Questions in the House.—Lord Balcarras stated on Tuesday that all the notice legally required of regulations keeping motor cars out of Hyde Park was the posting up of the same at the entrances. Lord Balcarras also stated that the First Commissioner refused to set apart a road in Hyde Park for motor cars and bicycles, where they would be free from the dangers and smells arising from horse traffic. Replying to another question, Lord Balcarras also said that the First Commissioner would not cancel the regulation excluding motor vehicles from the Park from 4 to 7 p.m. daily.

At the same sitting, Mr. Soares received leave to bring in a Bill amending the Motor Car Act, the principal provision of which is to permit magistrates to inflict imprisonment for the first offence of furious driving.

Many very useful motor-dynamo plants have been introduced by the De Dion-Bouton Company for lighting country houses, and for other purposes where a supply of electricity is required in out-of-the-way parts. That of which we give an illustration above is a portable installation, mounted upon a tubular frame, and designed for horse haulage. It has a standard 4-cylinder 15-h.p. petrol engine coupled direct to an unusually light 10-kilowatt dynamo, and is rendered completely self-contained, with the necessary tanks, radiator, fan, and switch-board. The makers also build self-propelled plants of a similar kind, the power being transmitted electrically to the road wheels.

COMMERCIAL POINTS.

Pneumatic Tyres for Omnibuses.—At the reliability trials of the Hanover Automobile Club, held recently, pneumatic tyres, made by the Continental Tyre Company, were fitted to a heavy vehicle, the weight on the rear axle being 4,000 kilogs., and on the front axle 2,000 kilogs., in all considerably over 5 tons. The diameter of these pneumatic covers is 150 millimetres, which is about 6 ins. These tyres are reported to have run through the trials successfully, and are, we understand, to be introduced into England for motor omnibuses.

United Motor Industries, Limited.—Another edition of this firm's excellent catalogue is now available, and in it we notice certain alterations in prices, as well as additions to the list of goods stocked.

For those requiring motor lubricating oils and grease, the Stern Sonneborn Oil Company notify us they have established a store at Clermont Ferrand during the period of the Gordon-Bennett Race. From this store competitors can draw their supplies free of charge. The firm have also offered three prizes of the respective values of 500, 300, and 200 francs to the three cars lubricated with their oils which shall be first to complete the course.

THE Shrewsbury and Challiner Tyre Company, Limited, of Kay Street, Ardwick Green, Manchester, have, owing to their rapidly increasing business in pneumatic tyres, etc., been compelled to open an additional dépôt at Nos. 12 to 14, Ardwick Green. These premises will be specially reserved for the sale department for pneumatic tyres, tubes, and rubber goods required in the motor and carriage trade, and by this means the prompt execution of orders will be ensured. In addition to these specialities, the company also stock a large assortment of motor clothing, rugs, and accessories.

THE enormous business being done by the Continental Tyre Company, of Hanover, has, we learn, necessitated the increase of the capital by 1,200,000 marks. Over 4,000 workmen are being employed, day and night, to cope with the increasing demand.

NEW COMPANIES REGISTERED.

County Motor and Cycle Company (Limited), Church Road, Burgess Hill, Sussex.—Capital, £2,000 in £1 shares. First directors, Lieut.-Colonel J. Bridges Walker, J. Bury Walker, and G. L. Benbough.

French (Limited), 153, Great College Street, St. Pancras, N.W.—Capital, £100 in £1 shares. Object, to carry on the business of carriers of passengers and goods, dealers in motors, omnibuses, &c. First directors, C. W. French, C. H. French, and R. H. French.

Leete and Co. (Limited).—Capital, £3,000 in £1 shares. Object, to carry on the business of auctioneers, brokers for the sale or purchase of estates, motor car and automobile dealers and agents, &c.

Montgomery Motor Company (Limited).—Capital, £3,000 in £1 shares. Object, to acquire the business carried on by J. Montgomery, at 14, Lincoln Road, Peterborough, as the Montgomery Motor Company. First directors, J. Montgomery and J. Goode.

New Wheel and Tyre Syndicate (Limited).—Capital, £12,000 in £1 shares. Chief object, to adopt an agreement with the Richardson and Price Engineering Company, Limited. First directors J. Cooper, A. Perono, and S. T. Richardson.

Robinson and Hole (Limited), Rythe Works, Portsmouth Road, Thames Ditton, Surrey.—Capital, £3,000 in £1 shares. Formed, to carry on the business of manufacturers of motors, cycles, &c. First directors, C. H. Hole and H. W. Robinson (managing directors).

Swaledale Haulage Company (Limited), Fremington, Reeth, Richmond, Yorks.—Capital, £1,000 in £1 shares. Object, to carry on at Reeth, Yorks., and elsewhere, the business of hauliers, carriers of passengers and goods, letters to hire of traction engines, motor cars, &c. First directors, J. D. Chipchase, E. Cherry, W. Turner, and J. S. Wagstaff.

Warwick Motor Engineering Company (Limited).—Capital, £1,000 in £1 shares.

BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

14699. 30th June, 1904. Improvements in Carburettors for Use with Internal Combustion Engines. H. J. Lee and J. J. H. Sturme, both of Widdington Road, Coventry. The object of this invention is a carburettor that will automatically vary the relative proportions of fuel and air. There are six figures. Fig. 3 is a sectional elevation in a vertical central plane. The carburettor body has an inlet, *a*, for air, and an outlet, *b*, for connection to the engine. The petrol is supplied by the spraying jet, *c*, through the usual float-regulated feed-

varying the quantity of air admitted to interior of the throttle, *n*. On the starting of the engine a rich mixture is drawn in, air being admitted only by the hollow stem, *d*. With increased speed the suction acts upon the piston, *j*, which is raised against the action of the spring, *k*. Additional air then enters by the apertures, *s*, and a further quantity flows in by the annular space, *f*. With further movement the plate, *l*, will permit additional air to enter through the holes, *n*. With continued movement of the piston, *j*, under suction, the air in the space, *f*, will have access to the mixing-chamber by the ports, *i*, through the passages, *w*, and by the passage, *z*. June 1st, 1905.

11866. 24th May, 1904. Improvements relating to Wheels for Vehicles, Agricultural Implements, and the like. J. M. Boulanger, Revigny, Meuse, France. The object of this invention is an improved wheel for vehicles that shall be stronger and more rigid laterally, and which shall be capable of adjustment for removing the slackness caused by contraction of the wooden spokes. There are eight figures,

secure half the alternate spokes to that side of the hub. The alternate spokes, *r*¹, on the right hand side of the wheel have also on their insides an annulus or ring, *o*, and on the outsides an annulus, *p*, against which the nut, *v*, presses. The rings, *o* and *p*, are also held together by bolts, *n*. A washer, *u*, is fitted in front of the nut, *v*, having stamped projections or bosses fitting recesses in the ring, *p*, so as to prevent the accidental loosening of the nut and washer. The tightening of the nut, *v*, The sleeve, *q*, surrounding the axle fits between the rings, *o* and *p*, and forms the inner support for the ends of the spokes, *r*¹. Tightening the nut, *v*, which is locked by the cap nut, *z*, puts the spokes, *r*¹, into compression, which compression is transmitted to the spokes, *r*. This arrangement appears to overcome the difficulties caused by the contraction of the wood spoke, as a slight turn of the nut will remove the resulting slackness. An improvement particularly useful for tropical climates where the effects of drying and contraction of the spokes are more pronounced. June 1st, 1905.

Patent Specifications Published.

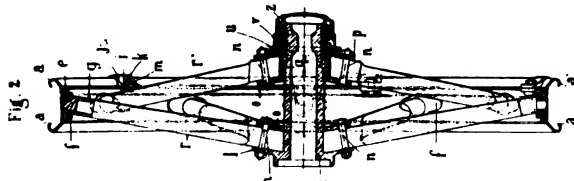
Applied for in 1904.

Published June 22nd, 1905.

- 12,133. E. FITZ-GERALD. Variable speed-gear.
- 12,202. H. HADWIGER. Intl. combn. motors.
- 12,442. F. H. STERLING. Anti-side-slip device.
- 12,664. F. J. FITZSIMMONS. Dust laying preparation.
- 12,983. J. CONEV. Agricultural motor vehicles.
- 16,697. C. H. WILKINSON. Tyres.
- 18,713. P. W. NOBLE. Motor vehicles.
- 19,593. Soc. AUTO. C.G.V. Lamps.

Published June 29th, 1905.

- 10,385. J. W. CROSS. Oil engines.
- 12,880. A. G. MELHUISH. Intl. combn. engines.
- 12,999. F. G. MCKIM. Pneumatic tyres.
- 15,209. E. W. LEWIS AND H. SMITH. Motor vehicles.
- 15,210. E. W. LEWIS AND H. SMITH. Motors.
- 15,305. GENERAL ELECTRIC COMPANY. Frames and gearing.
- 15,819. R. B. PARSONS. Wheel.
- 16,849. — ELLISON. Tread for tyres.
- 16,864. F. W. LANCASTER. Power-propelled vehicles.



chamber. Surrounding the jet, *c*, is a fixed hollow stem, *d*, having openings at its lower end for air. In the chamber above the jet or nozzle is fixed a sleeve or liner, *e*, forming annular spaces, *f* and *g*. Within the liner, *e*, is a piston-valve, *h*, the lower part of which forms a space or chamber, *i*, round the stem, *d*. Within the piston, *h*, is fitted an auxiliary piston or plug, *j*, having a flange at the top into which is fitted the spring, *k*. The upper end of the spring fits against the plate, *l*, covering the air-admission ports, *m*, in the throttle, *n*, and cover, *o*. Between the two is fitted a perforated disc, *p*, which is rotated to cause the holes therein to register or otherwise with the ports, *m*, thus

of which Fig. 2 is a sectional elevation. The rim is in two parts, *a* and *a*¹. The part, *a*, of the rim is rivetted to the bar, *e*. The part, *a*¹, of the rim is removable. Upon the circular bar, *e*, are rivetted at intervals for the reception of the spokes parts, *f*, which carry the sockets, *g*. The rim, *e*, also carries angle pieces, *i*, which serve to secure the portions of the rim, *a*¹, in position. The parts, *f*, are rigid with the portions of the rim, *a*¹, and are connected to the parts, *i*, by bolts, *k*, and nuts, *m*. This combined rim is thus formed for pneumatic tyres with wired edges. The hub, *s*, has a fixed flange at *l*, and the movable annulus or ring, *o*, secured to the flange by means of bolts, *n*. The flange, *l*, and the ring, *o*,

The Automotor Journal, July 8th, 1905.

THE AUTOMOTOR JOURNAL

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KING EDWARD on his Daimler carriage, leaving Sir Henry Rawlinson, the Commandant, after His Majesty's recent visit to the Staff College at Camberley.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.		
July 8...	...	Auto Cycle Club Consumption Trial.
July 8	...	Notts A.C. Hill Climb.
July 8	...	Hill-Climb, East Dean House, Eastbourne (Sussex County A.C.)
July 15	...	Motor Union Monthly Meeting (Chester).
July 19-22	...	*Brighton Speed Races.
July 27-28-29	...	*Blackpool Motor Meeting.
July...	...	24 Hours Run (Motor Cycling Club).
Aug. 2-3	...	*Motor Boat Trials (Southampton).
Aug. 11 or 18	...	*Quarterly 100 Miles Trials.
Aug. 14-19	...	Auto Cycle Club 1,000 Miles Reliability Trial.
Aug. 26	...	Inter-Team Trial (Motor Cycling Club).
Sept. 2	...	Skegness Races on Sands (Notts A.C.).
Sept. 9	...	Brown Cup (Motor Cycling Club).
Sept. 12	...	Auto Cycle Club Race Meeting.
Sept. 14	...	*Tourist Trophy (Isle of Man).
Sept. 15	...	*Daily Graphic Cup (Isle of Man).
Sept. 20, Oct. 24	...	*Van Trials.
Sept. 23	...	Scottish A.C. Hill Climb.
Oct. 4	...	*Speed Trials.
Oct. 7	...	Scottish A.C. 100 Miles Run.
Oct. 14	...	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17	...	*Quarterly 100 Miles Trials.
Nov. 17-25	...	Society of Motor Manufacturers and Traders Exhibition at Olympia.

* Automobile Club of Great Britain and Ireland Events and Papers.

Foreign Events (Trials, Races, &c.).

1905.		
July 9-16	...	Ostende Automobile Meeting.
July 11	...	Start for Glidden Trophy (New York).
July 15	...	Boulogne-Folkestone (Motor Boats).
July 16	...	Mont Cenis Hill Climb.
July 20-26	...	Paris to the Sea (<i>Journal de L'Automobile</i>).
July 28-Aug. 8	...	Paris Industrial Vehicles Trials (A.C. France).
July 27	...	Gaston Menier Cup (Motor Boats).
July 31	...	Anthony Drexel Cup (Motor Boats).
Aug. 6-7	...	Circuit des Ardennes.
Aug. 10-11	...	Paris-Deauville (Electric Vehicles).
Aug. 10-16	...	Herkomer and Bleichroder Races.
Aug. 12	...	International Cup for Motor Boats.
Sept. 1	...	Lake Geneva Motor Boat Meeting.
Sept. 2-3	...	Ventoux Hill Climb.
Sept. 2-10	...	Brescia Automobile Meeting.
Sept...	...	Tri-Car Competition (<i>L'Auto</i>).
Sept. 10	...	Vincenzo-Florio Cup.
Sept...	...	Tourist Car Trial (A. C. de France).
Sept. 3-10	...	Royan Meeting.
Sept. 3-10	...	Spa Automobile Club.
Sept. 11	...	British International Cup (Motor Boats Arcachon).
Sept. 12-14	...	Lake Lucerne Motor Boat Meeting.
Sept. 19	...	1/2 Litre Consumption Trials (Motor Cycles).
Sept.	...	Motor Bicycle Race (French Ardennes).
Oct...	...	Vanderbilt Cup.
Oct. 1	...	Chateau Thierry Hill Climb.
Oct. 15	...	Gaillon Hill Climb.

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PASSING EVENTS.

Saul among the Prophets.

"I DO not agree with this conviction. I must say that I yield to no one on this Bench in my desire and determination to do what I can to put a stop to driving recklessly and at excessive speed or to the danger of the public; but I say publicly from this Bench that this crusade against motorists in the country is being waged with a reckless disregard for fair play, and is bringing the magistrates' justice into disrespect and making this Bench in particular a byword and a laughing-stock among sensible people all the world over.

"I do this with a full knowledge of the responsibility I take in making these remarks; but as one of the Guildford Bench I feel very deeply the reflections which have been cast upon us in the public Press and elsewhere, [and I think it my duty to make this protest."

The court was crowded, and Mr. Lambert's remarks called forth some applause.

This is what Mr. Lambert, one of the Guildford magistrates, said on Saturday last, when a motorist had, as usual, been convicted by the Bench for the usual offence on evidence, which one of the magistrates, at any rate, clearly regarded as of the flimsiest description. It is a very unusual, almost an unprecedented, occurrence for a magistrate to rise from his place on the Bench, and publicly dissociate himself from the action of his brother magistrates in such uncompromising language. It is also confirmation of our contention that recognition of the importance of the automobile movement is penetrating more and more, even into that stronghold of prejudice, the magisterial bench. It is proof of another thing, too, and that is, that what has been written on the subject of magisterial prejudice, corrupt and untruthful police evidence, and all the scandals and injustices of innumerable motor car prosecutions, has produced its effect. It has brought one magistrate, at any rate, on a notoriously prejudiced Bench, to recognise that constant exhibitions of unfairness to automobilists is raising a serious degree of hostility against magistrates and police among exactly the classes of society who would naturally be solidly ranged on the side of the very authorities who have gone out of their way to alienate them.

There are people who think that it is better to let such things pass, who suggest that pointing out the truth only irritates the unfair and the prejudiced to take action more repressive and unfair still. The remarks of Mr. Lambert are a refutation of this idea. It shows that the truth, when properly put forward, makes converts even in the enemy's citadel.

The Last Tournament?

It would seem that there is some chance that the Gordon-Bennett Race, which such large numbers have thronged to witness this week on the Auvergne Circuit, may prove to be the last. At any rate the French Club have now officially decided to abstain from taking part in it in 1906, and will neither offer nor defend any challenges for that year. They do not say anything about the year 1907, possibly because they may think that if the Gordon-Bennett Race is killed for one year it cannot be resuscitated subsequently. It is not *altogether certain* that the abstention of a single club, even if that club be the A.C.F., will necessarily kill the Gordon-Bennett Race. After all, though France may be the centre of the world, it is not the world itself. There are other countries which produce automobiles, some of them even rather good ones. There is also a possibility that France *may* lose the race, though considering that all the French drivers have been practising for months over the course, that they have run the French

Eliminating Trials on the actual racecourse itself and that the facilities for other competitors to practise on the route have been—to say the least—restricted, this contingency is perhaps remote. But should the French win the race and refuse to defend the Cup, if challenged, for next year, the situation will not be devoid of interest, and may ultimately develop features of comedy. If the club receives a challenge, it is obvious that it must either "pay or play." It must either hand over the Cup to the challenger when he has won it, or defend it by running against him. The rules of the Gordon-Bennett Cup evidently never contemplated such a contingency, but they do certainly ordain that the club that holds the Cup will have to arrange for the next race to take place in their country. The French, no doubt, can refrain from taking part, but the French Club is a party to the agreement, and it seems likely that if they are challenged, and the other clubs desire to run the race, the French Club may possibly be legally in a position of having to provide for the holding of a race in which they have decided that they will themselves take no part. Such a situation would not be devoid of humour. There is no power according to the rules for the French Club simply to surrender the Cup and get out of their responsibility. Probably the difficulty could be got over by the International Committee, but, whatever they decide, it is not likely that either they or Mr. Gordon-Bennett himself will allow the race to be killed by a dog-in-the-manger attitude. The French Club must either "pay or play." It cannot retire into a corner and say it will do neither.

There is one solution which we offer to the French Club, though we fear they are not likely to accept it. Rule 20 provides that should the club holding the Cup become extinct, the Cup is to be returned to Mr. Gordon-Bennett, or in default to the A.C. de France. Let the French Club, then, agree to "extinct" itself, and the trouble will be got over, though we fear this is merely a counsel of perfection.

Not Necessarily a Serious Loss.

THE general impression prevails that the action of the French Automobile Club is dictated by the desire to ensure the inauguration of a race of their own next year, on the lines which we have so frequently discussed and criticised, viz., that France should possess such an overwhelming preponderance among the competitors as would make the French victory a foregone conclusion. This may be the case. But there is also a possibility that wiser counsels may prevail. The Marquis De Dion, at any rate, is in favour of organising an event which will be less of a race than a reliability trial, and extend over some 2,500 miles. We don't as yet know particulars, but it would seem that the idea is to approximate more or less completely to an English reliability trial. Needless to say, we should be heartily in favour of such a suggestion. Automobilists and engineers have learned all, or nearly all, that racing on the Gordon-Bennett lines can teach them. A change of character in the great events of the year from this point of view is needed, and if the Marquis De Dion's proposal, or some similar suggestion, leads to a practical result of this kind, it would tend to benefit the industry, and is certainly in accord with the conclusions to which our own club has come. At the same time, though there is not much use in protesting, we shall always protest against any proposal designed to give to France, or the French Club, undue advantages

in comparison with other countries. It is not fair, and it is not sportsmanlike, and we hope to see the notion abandoned. When the suggestion was first made, in regard to the Grand Prix, Frenchmen were by no means unanimous on the subject. The best of them were against it.

Appealing Tactics.

LORD WINDSOR, the First Commissioner of Works, has been subjected to a perfect fusillade of questions in Parliament on the subject of his exclusion of motor vehicles from Hyde Park during what are termed "society hours." To all these questions, which have suggested more or less directly that he might have modified the position which, fortified by the Lord Chief Justice's judgment, he has taken up, a stern *non-possumus* has been returned. The frontal attack upon him has therefore failed, but a new movement has now been organised. As most people are aware, the electric brougham is the vehicle specially patronised by ladies, and one of its many attractions to their eyes has been that it could be thrown open and enable them to indulge in a drive in the Park, at any time they wished, under practically ideal conditions. Now that the owners of these vehicles are no longer able to make use of them during the most interesting time of the day in this way, one of the chief advantages they possess for them has disappeared, and there is much unhappiness among the fair electromobilists in consequence. They have accordingly determined to try what feminine persuasiveness could effect where masculine directness has been unsuccessful, and a number of electric vehicles bearing their fair charges are accordingly to pilgrimage to Westminster for the purpose of obtaining an interview with the First Commissioner, and softening his heart to withdraw the unpleasant ukase. It is, of course, against the law that anything in the nature of a procession or demonstration should approach within a mile of the Houses of Parliament, but considering the specific nature of this demonstration, the law in this respect would hardly be enforced. What the results of their appeal is will be awaited with interest, as it will affect the convenience, and to some extent the happiness, of a very considerable number of the most prominent members of London society.

But Not Likely to be Successful.

MUCH as we wish well to the lady electromobilists' pilgrimage, we fear there is little chance of its proving successful in its object. We base this conclusion on the speech (which we reproduce elsewhere) made by Lord Windsor, the First Commissioner of Works, in the House of Lords, in reply to questions on the subject asked by the Earl of Rosslyn. From some of Earl Rosslyn's remarks it would appear that the action of the First Commissioner has been due to annoyance occasioned to Her Majesty the Queen by automobiles in the park. It must be admitted that Lord Windsor said nothing in support of this suggestion. At the same time it is significant that he did not directly deny it, and he took, *en preux chevalier*, all the responsibility for the ordinance upon himself. Lord Rosslyn's more or less discreet disclosure will probably have the effect of pouring oil on the troubled waters, for there is assuredly no one in the United Kingdom to whom Queen Alexandra's lightest wish would not be a law stronger than any on the Statute Book.

This is no doubt particularly the case among the users of the electromobile, and may help them to regard with more equanimity Lord Windsor's decision that he does not see his way to according them exceptional treatment, owing to the occasional difficulty of distinguishing certain builds of electric and petrol victorias from one another.

Not to Count as a Precedent.

As stated in another column, Earl Russell recently inquired whether, in prescribing the speed limit of 5 miles an hour in the town of Beverley, the Local Government Board thought it necessary to consult their Law Officers as to whether they had power to do so, and was informed that the Board had not considered such consultation necessary. Earl Russell, we think, was acting wisely in drawing attention to the subject. That a limit of 5 miles per hour has been decreed in Beverley matters not a brass farthing to anybody, and considering the character of the streets through that ancient town, it is probably a perfectly wise precaution to take. But the question is, has the Board power to make such an ordinance under the Act? With all respect we submit that they have not, and *had* they consulted their Law Officers they would probably have been told so. Under Section 9, the Board can only limit speed in any district on the application of the local authority to 10 miles per hour, neither more nor less. It is presumed that the 5-mile limit was imposed under Section 8, which empowers the Board to "prohibit or restrict the driving of any motor cars on any specified highway or part of a highway which does not exceed 16 feet in width." As a matter of interpretation, considering that speed is specially treated of in the next clause, it is obviously twisting the meaning of "restrict" to assume it to mean limiting speed below 10 miles an hour. Beverley, as we have said, does not matter, but the possible importance of the question is that some reactionary Board in the future may look upon Beverley as a precedent, and perhaps the automobilist members of one or other of the Houses of Parliament would be wise to elicit from the Board something of an undertaking that the Beverley case shall not be so regarded.

To Make Confusion More Confounded.

WE have all, at some time in our lives, seen the clever conjurer put the live hare, the Cheshire cheese, the old gentleman's top hat, and the brand new umbrella into a single quart measure without apparently interfering with its capacity for holding its legitimate contents. And when we were very young we wondered how all the things could find room in it. The Commissioners who recently concluded their sittings on the important question of London traffic seem to be of opinion that the London streets are like the conjurer's measure, that the more you put into them the more room there will be, for they positively—at any rate so it is alleged, for their report has not been actually issued to the public yet—propose to get rid of the existing congestion by running trams (of course, electric) along Piccadilly, Oxford Street, and Regent Street. No scheme for widening these thoroughfares is conceivably practicable, for even the national finances would be strained by the sum that would have to be paid for demolishing the houses on either side of these thoroughfares. It is treatment by contraries with a vengeance, *i.e.*, attempting to combat an evil by measures that would naturally tend to make it much worse. The condition of affairs at Piccadilly and

Regent Circus is bad enough now in all conscience, and what it will be when two lines of trams cross one another at these points the most irresponsible prophet would hesitate to predict. If this is the best that the collective wisdom of London and Parliament can suggest at a moment when even the small number of motor 'buses are showing their capacity for coping with traffic, without congesting it, then London will deserve to go down to history in company with Schildburg and Gotham. "I called you in," said the indignant English inn-keeper to the Irish policeman, who commenced to partake of hospitality with an unruly guest, "to eject this customer, not to drink with him." The Royal Commission on Traffic has been called in to devise means for combating the congestion, and they promptly propose to make it much worse. Ultimately the Irish constable and the unruly guest went off peaceably arm in arm, but there will be no room for anybody to go arm in arm or otherwise along Piccadilly Circus, Oxford Street, or Regent Street if this egregious proposal is ever actually carried out in practice.

Justice in a Bad Case of Obstruction.

ALMOST every automobilist of experience has suffered at some time or other from the surly obstruction which drivers of horse-drawn vehicles, particularly of the more lumbering sort, delight to exercise when they see a motor car approaching. Seldom have these offenders against the highway law been brought to book, motorists in general having put up with their insolence, partly, no doubt, from a belief—too widely justified, we fear, at any rate in the past—that justice to the automobilist is a thing that no one need expect at the hands of many benches of magistrates. It is, therefore, with considerable satisfaction that we draw attention to a case reported in full in another part of the present issue, in which an automobilist, endeavouring to pass a brake filled with beanfeasters, sustained severe damage owing to the abuse of the highway of which the latter was guilty. After the brake had obstructed the motor car for some time by occupying the whole road in front of it, it drew to the side, but just as the latter was utilising the opportunity to attempt to pass, in response to a signal to proceed, the brake was purposely deflected towards him, compelling him to drive on to a high pathway, which injured the car. The injury to the motor car brought it to a standstill, notwithstanding which, however, the brake of beanfeasters drove on without taking the slightest notice. The driver of the beanfeasting brake was prosecuted before the Barnet Police Court, on June 28th last, by Mr. Kingsbury, the owner of the automobile, supported by the Motor Union. The magistrates considered the case to be an especially bad one, and fined the defendant £5, the maximum penalty, and 12s. 6d. costs, with the alternative of a month's imprisonment.

More Thames Conservatism.

LITTLE attempt has been made, it appears, to enforce the recent ukase of the Thames Conservators prohibiting petrol motor boats from entering locks at the same time with ordinary row-boats. We conclude that this is due, as we suggested at the time, to the impracticability of carrying out such a suggestion. To keep half a dozen motor boats out of a lock because one row-boat was in it would be ridiculous, as also would be the converse process of keeping out a whole crowd of rowing boats because one small petrol boat might happen to have first

entered the lock. The Thames Conservators, however, are not giving up the question, and at their last meeting it was announced that they are drafting by-laws to deal with the question. We look forward to the appearance of these by-laws with some interest. It would appear that the scare itself is to some extent due to Dr., recently made Sir, Boverton Redwood, and Capt. Thompson, the Chief Inspector of Explosives, and that it was their observations, when consulted by the Thames Conservators, that had put the fear of the petrol boat in their minds. As the by-laws are now being framed, and as we are informed that this will be an elaborate and lengthy process, and that it will be some time before they assume their ultimate form, we would once more draw the attention of the Thames Conservators to the fact that though a large number of petrol boats have been regularly navigating the Thames for a period of years, accidents of any kind due to causes of which the Conservators are now so much afraid, have been conspicuous by their absence.

Over the Bridge at Last.

THE London County Council has at last won the victory, and the Court of Common Council has agreed to permit the County Council's trams to run over Blackfriars Bridge and along the Embankment. It is to some extent a Pyrrhic victory for the Council, for the concession has only been allowed on the condition, suggested some time ago, and chronicled by us at the time, that the Council should undertake the widening of the bridge or building another one. This is the second important recognition (the first was at Brentford) of the fact for which we have long contended, that where rights are conferred on tramway companies, they should be compelled to widen the highways along which they lay their tracks, and we are thankful for this important recognition of the principle. At the same time it is impossible to feel indifference to the further permission granted them to run the trams along the Embankment. It will be very little good, as we have already pointed out, to the public, and it will largely spoil the really finest thoroughfare in London. There are grounds of public policy perhaps in favour of extending the Blackfriars Road trams over the bridge to the north, but there do not seem to be any whatever for running them along the Embankment.

A New Automobile Association.

It has for long been notorious that while the law against motor car owners is enforced to the last letter, with a large proportion of prejudice and unfairness thrown in, the police regularly wink at infractions of the highway laws of all sorts by the drivers of horse-drawn vehicles. What is really needed in the interests of the automobile movement is a fair and impartial administration of the law without respect to persons. With a view of ensuring these ends and also combating action designed for the annoyance and restriction of the rights of automobilists, the Automobile Association was formed on the 29th of June at a meeting held at the Trocadero Restaurant. The new Association is intended to include a specially strong legal department for the assistance of its members, and is designed to come to their support, particularly in all cases of litigation involving automobile interests in a substantial manner.

THE GORDON-BENNETT RACE.

GORDON-BENNETT RACE.—Théry, the winner, returning into the Laschamps enclosure on his Richard-Brasier Car.

MOTORING TO THE AUVERGNE CIRCUIT.

By Charles Jarrott.

OF course, the chief difficulty on the morning of the start was to get the various members of the party out of

bed. We had three cars, and had arranged to make the run through from Paris to Royat, 390 kiloms. in the day. Mr. Nicholas Wood, accompanied by Mr. J. Charlton and M. Deland, was driving his 50-h.p. Panhard; Mr. G. Du Cros with Mr. Willie Du Cros, Mr. Alfred du Cros and Mr. Harvey Du Cros, were on a 24-h.p. Panhard; and Mr. Letts and myself on a 24-h.p. De

At La Cratiere. Vauriat Bridge.
AUVERGNE CIRCUIT.—Two of the temporary bridges erected on the Course.

AUVERGNE CIRCUIT.—A glimpse of the exquisite scenery on the Course. Heath on his Panhard during the French Race.

Dietrich with a racing body. The start from the Hotel Continental was fixed for 6 o'clock, but by the time the various members had been roused from their slumbers, and had collected their luggage, &c., it was nearer 7.30. A stop at Messrs. Panhard and Levassor's Works in the Avenue d'Ivry for spare tyres made a further delay, and it was half-past eight before we passed through the gates and got upon our way.

The three cars proceeded in a very sedate fashion

until a car of uncertain h.-p. came by, having discarded its exhaust-box with the idea, I presume, of obtaining more speed and emulating a racing car. With a broad, wide-open road stretched before us, the supercilious expression of the driver of the car of uncertain h.-p. was more than human flesh and blood could stand, and immediately throttles were opened, and away we all went in pursuit. Something happened to the 50-h.p., though what it was none of us knew. The chase was a stern

GORDON-BENNETT RACE.—Théry passing through Rochefort.

one, and we found ourselves at Melun almost before we realised that we had started, having succeeded in convincing the little man on the car of uncertain h.p. that the 24-h.p. De Dietrich, even with the exhaust-box on, was a little bit better than his car without one.

The only member of the party who had not appeared was Mr. Wood, on the 50-h.p. Panhard, and although we waited a considerable time, we had to resume our journey, believing that he would eventually pick us up on the road. A glorious day on a speedy car on a French road is to my mind an ideal of luxury, and of the many enjoyable runs I have had in France none have I enjoyed more than my run to Royat on that occasion. The 24-h.p. De Dietrich was upholding the reputation of its

makers in splendid style, and we were able to keep company throughout the whole of the journey without difficulty, the magnificent stretch of road through Nevers and Moulins being as good as anything I have yet travelled over. By the way, I would like to mention that the Hotel de France at Nevers is excellent, the proprietor having been *chef* at the Lord Warden Hotel at Dover for a number of years.

Arrived at Royat, one of our difficulties was to find garage accommodation, and it was only by the ingenuity of the French mechanician I had on my car that we were able to find any room at all for storing the cars for the night.

So much has been said about the scenery in and

GORDON-BENNETT RACE.—Caillols passing the Grand Stand on the Auvergne Circuit.

Photo by Michelin and Co.

about the racecourse that it is unnecessary for me to say anything beyond stating that it is exceedingly charming.

At four o'clock in the morning the 50-h.p. Panhard arrived, having had exceedingly bad luck all the way through with tyre troubles, and unluckily meeting with rainstorms which we fortunately in our flight had escaped. The next morning saw us out on the course viewing the weighing in of the cars. I must say that I was agreeably surprised with that portion of the course that I had an opportunity of going over. Undoubtedly it is very "cornery," and if proper caution is not exercised serious accidents will doubtless result; but at the same time the road surface itself is good, and some of the bad

corners have been beautifully banked, and compared with the road over which our English cars were tried in the Isle of Man, the course is almost luxurious. Undoubtedly to get the best average speed it has to be studied carefully, but I certainly fail to understand why the course has been universally condemned. One thing is evident, and that is that only an excellent car and an excellent man can hope to make the race successfully; and after everything is said and done, if this is not the result which is aimed at in automobile racing what is the use of it? We have been convinced through the Ardennes Races and the Paris-Madrid Race that terrific speeds can be attained along straight roads, and there-

GORDON-BENNETT RACE.—Duray on his De Dietrich Car at full speed, after passing Laschamps.

Photo by Michelin and Co.

GORDON-BENNETT RACE.—Caillots on his Richard-Brasier Car in Clermont Ferrand.

fore I can see no objection to a difficult course being chosen, and the makers induced to construct special vehicles specially suitable for a hard and trying race.

From a racing point of view one could not help being impressed with the construction of the Richard-Brasier cars. Even the day before the French race they looked capable of winning, and there was no question but that all the competitors looked upon the three Richard cars as being particularly deadly. The De Dietrich vehicles struck me as being specially fine specimens of racing cars, and they were undoubtedly the best racing cars Messrs. De Dietrich themselves had ever made. There was no doubt about the cars being strong enough to stand the course and they were unquestionably very powerful. The Clement cars were also rather nice vehicles from a racing standpoint, and altogether it was very clear that a terrific fight would take place on the following day for

the first three places. Our party had the pleasure of sitting down to luncheon with the Chevalier Rene de Knyff, and with M. Clement and M. Hocmeille, and it was evident from the information the Chevalier gave me in connection with the arrangements made by the Automobile Club de France for the race that everything possible had been done to make the event successful in every way, both in the direction of obtaining information of the various competitors during the race and in the safeguarding of the public and competitors.

At three o'clock on the following morning we were up and away to the start. There is a long climb which has to be made out of Royat up to La Fontaine de L'Arbe. At this point a tunnel has been constructed beneath the road, which enables cars to be driven through, and thus get inside the circuit. A little narrow rough road has

GORDON-BENNETT RACE.—Caillots on his Richard-Brasier Car taking a down grade at top speed on the Auvergne Circuit.

Land's End to John o'Groats and back.

The Honorary Secretary of the Somerset Automobile Club writes that
the

on his Bridgwater car have been over 2,500 miles, including the trip
from Land's End to John o'Groats and back, with no trouble whatever
save one puncture. "They have done splendidly."

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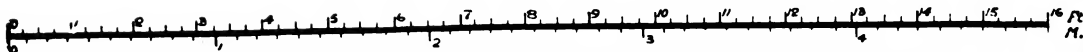
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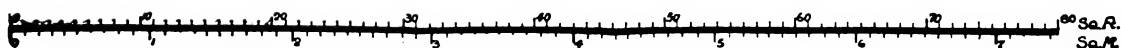
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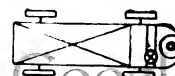
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AUVERGNE CIRCUIT.—Rougier on his De Dietrich passing through Laquéuille, one of the barricaded villages at top speed during the French Race.

been constructed from this point right round to the Grand Stand erected at the starting point. We drove over this narrow road, and left our cars close to the Grand Stand, and after we had seen one round of the race we were able to take our cars along round the Puy de Manson to Olby, and from there to the course, being in a position at this point to see the cars in full flight.

The race itself has been described at length, but I received a few impressions which are perhaps worth mentioning. Firstly, I was exceedingly impressed with Wagner on his Darracq. Timing all the cars up to a

given point at the start of the race, he was certainly travelling faster than anyone else, and afterwards I had the opportunity of seeing him take two dangerous corners on the course, and his driving was magnificent. Other drivers in the event took the corners in beautifully clean fashion, but no one with the devil, dash, and speed of Wagner, and at the end of the third round I believed him to be certain of a place in the team. Duray, also, on his De Dietrich, was exceptionally brilliant on this spot, whilst the driving of Théry and Hanriot was remarkable for its cleanness, the curves being taken in an

AUVERGNE CIRCUIT.—A specimen of the barricading on the course at dangerous corners. Gabriel on his De Dietrich rounding the Laquéuille turning during the French Race.

AUVERGNE CIRCUIT.—De La Touloubre taking a sharp corner in grand style with his Darracq during the French Race.

exceptionally fine manner. Whilst we were viewing the race at this portion of the course, I had the opportunity of a long chat with my old friend the Baron de Caters, and he told me, from his own experience, that whilst the course was not good, in view of the fact that there were so many corners, at the same time it was not exceptionally bad. He was very confident that the Mercedes would put up a very fine fight for the cup.

Of course, during all this time we were entirely in the dark as to who was actually leading, and we therefore made our way back to the starting and finishing point to ascertain the news. We then learned that Théry had finished, and that other cars were finishing quickly all the time, but no one could say who had actually won

owing to the fact that all the telephone wires to the various controls had been cut, thus making it impossible for the times to be worked out, allowing for the stoppages in the controls. However, M. de Knyff gave us the names of Théry, Duray, and Callois as being the three leaders, and we left for Royat gratified beyond measure that we had witnessed one of the finest automobile races that had ever been run. The fight throughout was of the fiercest description, Théry, Wagner, Duray, Callois, Sizsz, and Heath all apparently having the race in their hands at one time or another. There is no question but that three magnificent cars will represent France in the race for the Cup on the 5th.

I may say that I left the course feeling very gloomy,

GORDON-BENNETT RACE.—The road above Sayat.

Photo by Michelin and Co.

Alexander Burton on his Austrian Mercedes Car.

Hermann Braun at the wheel of one of the other
Austrian Mercedes Racers.

GORDON-BENNETT RACE.

The car from the off-side.

View showing the pedals and steering wheel.

GORDON-BENNETT RACE.—One of the Austrian Mercedes Cars built at Wiener Neustadt.

GORDON-BENNETT RACE.—The Austrian Mercedes, The engine from either side.

MOTORING TO THE AUVERGNE CIRCUIT.—Messrs. Harvey Du Cros, Alfred Du Cros, George Du Cros, Willie Du Cros, Charles Jarrott, and W. M. Letts, formed a party to motor to the Auvergne Circuit to witness the French Race, their experiences being of a particularly pleasant nature, a few points in connection with which we are able to give this week from the pen of Mr. Charles Jarrott. In the above pictures, which Mr. Charles Jarrott has also sent us, the scenes are (1.) Outside the Castel Hotel, Royat, in which, in addition to most of the members of the above party, Mr. Bianchi and Wild his mechanician on their Wolseley Car appear in the photograph. 2. is a temporary halt at Melun, and 3. a rest for refreshments en route.

as we had the news given to us, at almost the last moment, that Giradot had had a terrific smash and was killed, and, remembering him as one of the o'd sporting crowd in the days of Paris-Bordeaux, Paris-Berlin, Paris-Vienna, and a dozen other races, it seemed an unhappy ending after having safely escaped so many dangers, and it was with a feeling of the greatest relief that we heard afterwards in Royat that the news was happily untrue, and that Giradot, though badly knocked about, was still in the land of the living.

Once back in Royat, we lost little time in getting on to the road again, and eventually arrived back in Paris with the three cars at two o'clock on the following afternoon, in ample time to catch the four o'clock train back to London.

The Gordon-Bennett Race of 1905, will, I believe, excel in excellence any race before run, and as automobile racing, seen under the conditions it will be seen under in this event, will undoubtedly soon be a thing of the past, I for one do not propose missing the closing scenes and events of a sport of which there is none greater, my one regret being that I shall look upon the fight as a spectator and not as a competitor.

THE GORDON-BENNETT RACE.

THE EVE OF BATTLE.

It is weighing-in day for the competitors in the great race, and excitement reigns on all the principal points of the Auvergne Circuit. Everything is enthusiasm and dust, and yesterday there was a battle of flowers. There has been no rain for a length of time, and on the volcanic soil of Auvergne, tufa, felsite, and the rest of these friable rocks, this means that the dust is stifling. So far the anti-dust preparations that have been employed have been far from successful in getting it under. All the inhabitants of Clermont Ferrand and Royat seem to live in the streets, and their ranks are being rapidly recruited by the throngs that pour in by motor car, by train, and by bicycle. The number of excursionists probably exceeds that to the Taunus course last year, and innkeepers and everyone who has even a cattle-shed to let, are reaping a tremendous harvest. They do not enjoy quite such a monopoly, however, as their colleagues in Germany did. Large numbers, scared by the huge prices demanded, have erected tents and are camping

and tent pegs and expressing themselves with much picturesqueness in several European languages. The wind, however, is sometimes "tempered to the shorn lamb," and though the untented enthusiasts were angry and dusty, they still remained dry, for the simoon did not bring with it a single drop of much needed rain.

Excitement runs high. The school children in all the Auvergne towns and villages have been promised a holiday to see the race, and all the local barbers have decided to do the same, and have posted up notices that they will shave nobody on the day of the great event. Never before, we believe, has a race produced such an effect.

REGARDING the British chances in the race, the Hon. C. S. Rolls, who was generally credited with having had most practice with one of the Wolseley racers prior to the race, wrote us in a somewhat despondent mood of the 177 corners, to be negotiated four times, which it was necessary to know by heart before they could be taken with assurance at the maximum safe speed. Mr. Rolls commended the work of the French Club in going to so much expense in re-tarring the road, building bridges, and banking corners, but for all that, as we have before stated, the British team were seriously handicapped by the fact that they could not practice over the course adequately since the team was selected. In addition to this, Mr. Rolls remarks on the lack of sufficient power in the English-built racers, this point being of immense importance on such a course, where the acceleration powers of the cars have to be brought into play literally hundreds of times during the complete circuit.

Earp, who was England's first representative, must have found the course more than trying on the day of the event, for he had comparatively no practice at all. First, trying his 4-cylinder Napier, then off to London to fetch

GORDON-BENNETT RACE.—Herbert H. Lytle, one of the American team, on the 8-cylinder Pope Toledo Racer.

out in them, placing their reliance upon the fine dry weather. But they reckoned without the local deities, who control the weather arrangements in the volcanic Auvergne, where the bare peaks of the Puys, rising to considerable altitude with their heat-absorbing lavas and trachytes, become baked to a tremendous temperature in the July sunlight, and the upward currents of air are always liable to produce local tornadoes and dust storms like those of the Cordilleras on a small scale. One of these Auvergne simoons swept up on Tuesday at the very moment when the cars were being weighed at Laschamps, and overthrew the tent over the enclosure in which the weighing was taking place. Cars, officials, drivers and spectators were whelmed in one *debacle* of swirling tarpaulin, and a tent-peg was thrown into the face of an English mechanic, gashing him considerably.

The Auvergne local deities are evidently intensely patriotic, as indeed they should be, remembering Turenne and La Tour d'Auvergne (the First Grenadier of France), and they seem to have concentrated their fury particularly on the tents where the Wolseley cars were housed, which collapsed in a heap, burying their attendants with them in the *débris*. Fortunately when the wreckage was removed, it was found that no trace of injury had been suffered by the English cars.

The simoon, too, wrought great destruction in the "tented field," where the numbers of excursionists, as stated above, were camping out, and most of them were subsequently running after their canvas

HERR JELLINECK MERCÉDES.



As seen with American eyes.

And from a French point of view.

PARTICULARS OF THE COMPETING CARS IN THE GORDON-BENNETT RACE

Country and Colour.	Official No.	Car.	Driver.	H.-P.	Cyls.	Bore.	Engine.	Stroke.	Ignition.	Transmission.	Speeds.	Tyres.	Wheel-Base.	Track.	Clutch.	Radiator.	Weight.
France (Blue)	1 7 13	Richard-Brasier	Théry Caillaud	90	4 prs.	160	mm.	140	L.-T. magneto	Chains, 1 sliding member in gear-box	3	Michelin 810 x 90 820 x 120	m. 2'65	1'35	Leather cone	Tubular	kilogs. 994 1,000
		De Dietrich	Duray	120	4 prs.	190		150	L.-T. magneto	Chains, 2 sliding members in gear-box	4	Michelin 870 x 90 920 x 120	2'85	1'35	Metal cone	Honeycomb	1,003
England (Green)	2 8 14	Napier	Earp	90	6 sep.	6½		5	Accumulators.	Live-axle, 1 sliding member in gear-box	2	Palmer 870 x 90 850 x 120	9 ft. 3 in.	4 ft. 7½ in.	Metal cone	Tubular	996
		Wolsely	Rolls Bianchi	90	4	7½		6	Accumulators.	Chains, 1 sliding member in gear-box	4	Dunlop 32 x 3½ 32 x 120	9 ft. 1 in.	4 ft. 7 in.	Leather cone	Tubular	998 995
Germany (White)	3 9 15	Mercedes	Jenatzy De Caters Werner	120	4 prs.	185		150	L.-T. magneto	Chains, 2 sliding members in gear-box	4	Continental 870 x 90 880 x 120	2'92	1'36	Scroll	Honeycomb	1,006 1,005 1,003
Italy (Black)	4 10 16	Fiat	Lancia Cagno Nazzari	110	4 prs.	180		150	L.-T. magneto	Chains, 2 sliding members in gear-box	4	Michelin 870 x 90 880 x 120	2'80	1'35	Disc	Honeycomb	1,007 1,006 1,005
Austria (Black and Yellow)	5 11 17	Mercedes	Braun Hieronymus Burton	120	4 prs.	185		150	L.-T. magneto	Chains, 2 sliding members in gear-box	4	Continental 870 x 90 880 x 120	2'92	1'36	Scroll	Honeycomb	1,001 1,005 1,003
America (Red)	6 12 18	Pope-Toledo Locomobile	Lytle Dingley Tracy	70 100	4 sep. 4 prs.	170 170		150	Accumulators Magneto	Accumulator Chains Chains, 2 sliding members in gear-box	2 4	Diamond 820 x 120 820 x 120 870 x 90 880 x 120	2'70 2'85	1'30 1'35	Leather cone Scroll	Tubular Honeycomb	992 984 1,007

Special Features.

Napier.—Cast-iron liners in aluminium jackets. Heads cast separately in pairs. Michelin tyres have steel-studded leather treads let into the actual rubber of the tyres. Continental tyres are fitted with Samson non-skid bands.

Wolsely.—Horizontal engine. cast separately.

Cast-iron liners in aluminium jackets. Heads cast separately. Wheels stayed with wire spokes.

the 6-cylinder machine, which he took round the course for the first time on Saturday last, Earp's time gave him little opportunity for practice, and still less for knowing such a course as that on which he bravely set forth to uphold England's glory on Wednesday morning. There was at one time considerable doubt as to which car Earp would actually drive on the day of the race. As a matter of fact, he actually drove the 6-cylinder car, and with so little time to pick and choose, it is almost a pity he had ever to be in doubt.

Bianchi, whose style of driving in the Isle of Man won him much enthusiastic support, only had a few turns round the course, as for a period his essays were interrupted by a smashed gear-box—the unfortunate result of his foot accidentally slipping off the clutch-pedal one day.

Much rivalry existed prior to the event between the French and German teams, or perhaps it would be more correct to say between the supporters of Théry and those of Jenatzy. Both drivers more or less lived on the course, but Théry gave his car a rest, and practised on another towards the end, while Jenatzy upheld the principle of giving faults every chance of developing in advance. Jenatzy was popularly credited with having accomplished the course several minutes faster than Théry's best "eliminating" time. Too much credit must not, of course, be given to mere rumours; but that they were well founded on fact in this case is not altogether unlikely, judging from the results of Wednesday's race. Both Théry and Jenatzy are undoubtedly first-class drivers, and it was to them that everyone turned—irrespective of nationality—for an exhibition of how to negotiate that course in the highest of high-class style.

Other members of the French and German teams were perhaps rather overshadowed by the fame of their illustrious *confrères*, but the driving of Caillaud, on his Richard Brasier, and Duray, on his De Dietrich, was always interesting, while that of De Caters and Werner, on their Mercedes, did much to affect the German chances of success. The Mercedes cars, which represented Austria as well as Germany, had thus six strings to their bow, but no one allowed very much for the efforts of the Austrian team, because they had had insufficient practice on the course. Incidentally, too, it has been demonstrated by the result that mere multiplicity of strings to the bow of any one competitor is no guarantee of success.

The Italian team, with the splendid Fiat cars, was very conspicuous on the course before the event, and all these drivers undoubtedly showed to advantage, more especially Lancia, who, as also Cagno, was one of Italy's representatives last year.

None of the American cars appeared to be capable of excessive speeds, although prior to the race their performance was distinctly better than was generally anticipated. Lyttle was credited with plenty of reserve power, and was undoubtedly the favourite of the American team.

THE RACE.

PRELIMINARY RESULTS OF THE GORDON-BENNETT RACE, AUVERGNE CIRCUIT, JULY 5th, 1905.

Place.	Country.	Car, Official Number, and Driver.	Gross Running Times per Lap (85.3 Miles).								Gross Time for the Circuit (341.2 Miles).	Acceleration 1 Kilom. Time.					
			1st Lap.		2nd Lap.		3rd Lap.		4th Lap								
			h.	m.	s.	h.	m.	s.	h.	m.	s.	h.	m.	s.	secs.		
1	France...	Richard-Brasier (1), Théry	...	1	41	7	1	48	57	1	48	42	1	50	56	7 9 42	55
2	Italy ...	Fiat (16), Nazzari	...	1	40	13	2	6	12	1	59	26	1	50	18	7 36 9	66
3	Italy ...	Fiat (10), Cagno	...	1	54	44	1	45	16	2	53	47	1	51	11	8 24 58	51
4	France...	Richard-Brasier (7), Caillois	...	2	0	50	1	46	35	1	53	35	1	47	17	7 28 17	57
5	Germany	Mercedes (15), Werner...	...	1	50	1	2	9	14	2	10	35	2	49	40	8 19 30	48
6	France..	De Dietrich (13), Duray	...	1	49	27	1	58	13	2	43	35	1	50	35	8 21 50	55
7	Germany	Mercedes (9), De Caters	...	2	6	9	1	39	14	2	12	49	2	13	15	8 11 27	51
8	England	Wolseley (8), Hon. C. S. Rolls	...	2	3	49	2	5	1	2	15	35	2	7	17	8 31 32	62
9	England	Napier (2), C. Earp	...	1	54	11	2	12	59	2	20	38	2	2	11	8 29 59	50
10	Austria	Mercedes (5), Braun	...	1	55	4	1	56	14	2	28	45	2	13	2	8 33 5	52
11	England	Wolseley (14), C. Bianchi	...	2	12	49	2	1	35	2	16	38	2	7	38	8 38 40	63
12	America	Pope-Toledo (6), Lyttle	...	2	31	9	2	29	5	2	26	52				70	
	Germany	Mercedes (3), Jenatzky	...	2	9	41	2	12	32	Retired			—			48	
	Austria	Mercedes (11), Hieronymus	...	2	2	25	Retired						—			55	
	Austria	Mercedes (17), A. Burton	...	2	37	30	—						—			55	
	Italy ...	Fiat (4), Lancia	...	1	34	57	1	42	11	Retired			—			50	
	America	Pope-Toledo (12), Dingley	...	Retired			—						—			72	
	America	Locomobile (18), Tracy	...	2	42	51	Retired						—			63	

The following is a list of the official numbers and the times of starting:—

Official Number.	Time or Start.	Driver, Country, and Car.
1	6.0 a.m.	Théry (France), Richard-Brasier.
2	6.5	Clifford Earp (Great Britain), Napier.
3	6.10	Jenatzky (Germany), Mercedes.
4	6.15	Lancia (Italy), F.I.A.T.
5	6.20	Braun (Austria), Austrian Mercedes.
6	6.25	Lyttle (United States), Pope-Toledo.
7	6.30	Cailliois (France), Richard-Brasier.
8	6.35	C. S. Rolls (Great Britain), Wolseley.
9	6.40	De Caters (Germany), Mercedes.
10	6.45	Cagno (Italy), F.I.A.T.
11	6.50	Hieronymus (Austria), Austrian Mercedes.
12	6.55	Dingley (U.S.A.), Pope-Toledo.
13	7.0	Duray (France), De Dietrich.
14	7.5	Bianchi (Great Britain), Wolseley.
15	7.10	Werner (Germany), Mercedes.
16	7.15	Nazzari (Italy), F.I.A.T. cars.
17	7.20	Burton (Austria), Austrian Mercedes.
18	7.25	Tracy (U.S.A.), Locomobile.

The following table shows at what time the race was to be declared over at various points of the course. Cars entering any control after the hour here stated not being allowed to proceed further in the race:—

Place.	Time.	Place.	Time.
	p.m.		p.m.
Laschamps	3.35	Chambon	4.23
Quatre Routes (Nebouzat)	3.39	Pontgibaud	4.37
Rochefort	3.48	Vauriat	4.41
Lagueville	3.54	Volvic	4.46
Bourg-Lastic	4.2	Quatre Routes (Clermont)	4.55
Hermeut	4.12		

This table is calculated on a basis of 1 h. 25 m. for the circuit, an allowance which is 11 m. less than Théry's best time in the eliminating race, so that although 3.35 p.m. appears to be an early time limit for

Laschamps, it was not unreasonable to suppose that any car leaving after that time could not complete another lap before 5 p.m., at which hour—as we stated last week—the race officially finished.

The storm of the previous day continued into the night, and many of the unfortunate campers-out, whom the simoon had deprived of their tents, must have felt pangs of envy regarding their more fortunate confrères who had succeeded in obtaining accommodation in permanent structures in the towns and elsewhere. Not that anybody got much sleep. Enthusiasm, noise, excitement, banners, flags, triumphal arches and immense numbers of electric lights

were everywhere, and from two o'clock, before it was even really grey in the north-east, there was a constant procession of cars bringing spectators to the various points of vantage. Unlike the morning of the Eliminating Trials, the dawn broke cloudy and boisterous, but before the sun was well up the clouds broke, and blue tracts of sky heralded a splendid day, during which a little not unwelcome rain fell about noon.

By four o'clock the grand stands had already some occupants, and at that hour M. Clementel, the Minister for the Colonies, drove up in his motor car and interviewed all the competitors in succession, to whom he wished good luck—a hope from which not all of them obviously could benefit—and bestowed upon them a fatherly caution to be extremely careful.

At five o'clock all the competing cars were lined up in their order of starting, and the start itself took place with the fine punctuality (which has always characterised the French management of events of the kind) to the very second at six o'clock, the grand stand, however, not by that hour being very full.

Great as were the numbers who had thronged towards the course on the previous day, one was scarcely prepared for the enormous crowd that witnessed the start. Expecting, of course, to find motorists of all nations predominating, most people were surprised by the number of peasantry who had come from very considerable distances to witness the great automobile race of the year. The enthusiasm for the automobile movement has penetrated into every rank of the French people.

The start, which took place at intervals of five minutes in the order we have indicated above, was uneventful. Théry got off in splendid style, passing away up the mountain road at a speed which covered the first kilo-

metre in 55 secs. He, of course, received a tremendous ovation from his countrymen, but the crowd was very good in this respect, and every starter was greeted with a most encouraging round of cheers. Earp's commencement of the race on the 6-cylinder Napier was splendid. He was a little slow at starting perhaps, but he got away with grand acceleration, and covered the first kilom. in 5 secs. better time than Théry. Nearly all the starts, in fact, were magnificent, Jenatzy, who had changed his tyres just before starting, even improving on the first kilom. by 2 secs., and covered it in 48 secs.—a feat which was due to his wonderful smartness in gear changing; he was followed by Lancia, beneath whose car the customary racecourse dog elected to immolate itself—though no ill result apparently followed to the car. Exception must be made as regards the representatives of America, who, however, were scarcely serious competitors, and whose starting was distinctly lame, although the coolness of Dingley, who calmly smoked a cigar, was highly characteristic of American nonchalance. Bianchi, who was amongst those who made a good start, was ultimately placed eleventh. It was calculated that Théry would return to the starting point within 15 mins. after the last car had been started on the first lap, and almost exactly at 7.41 he was sighted, and re-commenced the second round of the great contest, and about 10 minutes later Lancia, on the Fiat car, whirled past, to the great enthusiasm of the Italian contingent among the spectators, for this meant that their champion, driving splendidly, had gained some 6 mins. on last year's winner, and he still continued to gain till he was nearly 7 mins. more to the good at the end of the second round. This placed him in actual time about 2 mins. behind Théry, so as to be practically coming into sight by the time Théry had disappeared, and the excitement was accordingly tremendous. The official placing at the end of the first round was—

	h. m. s.		h. m. s.		h. m. s.
1. Lancia	1 34 57	4. Earp ...	1 54 11	7. Cailliois	2 0 50
2. Théry...	1 41 7	5. Cagno	1 54 44	8. De Caters	2 6 9
3. Duray...	1 49 27	6. Braun...	1 55 4	9. Jenatzy	2 9 41

At the end of the second, the relative position of the leading competitors was—

	h. m. s.		h. m. s.
1. Lancia ...	3 17 8	4. Cailliois ...	3 47 25
2. Théry ...	3 30 4	5. Rolls ...	4 8 50
3. De Caters	3 45 23	6. Jenatzy ...	4 22 13

De Caters and Cailliois, both of whom were tremendous favourites, being received with the greatest enthusiasm.

Jenatzy's displacement in the first round was attributed to trouble with his carburettor, which delayed him some eight minutes at the Moreno Pass. On the second round he made up a good deal for lost time, picking up from ninth to sixth place, but finally retired on the third round.

But, alas for the hopes of Italy. Driving splendidly, as he was, Lancia had misfortune, radiator troubles, it was said, on the third round, which knocked him out, leaving, however, the two other Italian Fiat drivers, Cagno and Nazzari, travelling in splendid style. In fact, the behaviour of the Fiat cars, and the perfect way in which they were driven, has proved one of the chief sensations of the 1905 Gordon-Bennett Race.

GORDON-BENNETT RACE.—The two Italian drivers, Nazzari and Cagno, who secured 2nd and 3rd places with their Fiat Cars.

At the end of the third round Théry was accordingly leading, closely followed by Cailliois, with the two Italians, Cagno and Nazzari, in hot pursuit.

Thenceforward Théry maintained his lead till the end of the race, finishing finely and, as usual, quite unruffled, in approximately 7 hrs. and 10 mins.—a wonderful and marvellously uniform performance considering the course. The three first places fell to:—1, Théry; 2, Nazzari; 3, Cagno.

Deeply as everyone will sympathise with Lancia's ill-luck, and pleased as everyone would have been to see a new country win the Cup, it must be admitted that the combined performance of Théry and the Richard Brasier firm is nothing short of phenomenal. For two years in succession they have won the Eliminating Trials and the Gordon-Bennett Race without, it may almost be said, a single screw getting out of place.

Of course, there was the usual emotional outburst. Crowds surrounded the winner as soon as his car had slowed down, lifted him shoulder high, and carried in triumph to M. Brasier, who duly embraced him, and presented him to the Minister for the Colonies, M. Clementel, while the band played the "Marseillaise," and the crowd shouted "Vive la France!" "Vive Théry!" "Vive M. Brasier!" and "Vive!"—everything else. Doubtless Théry, at any rate, was thankful that the weather had become cooler and somewhat showery!

Englishmen will be certainly encouraged by the creditable performance of the British team, as all three cars completed the course within the minimum time.

This is a testimonial to English car-building. Never before has an English team done as well in the Gordon-Bennett race. It is true that the cars were not highly placed, obtaining but 8th, 9th, and 11th places. But of the other competing countries France was the only one whose representatives *all* got home and placed. This means, as far as can be judged, that the only difference between the English and the French teams was a matter of familiarity with the course. And to really learn the course the English competitors had next to no opportunity, while the Frenchmen have been riding round the course—probably the trickiest course on which a race has ever been run—with the regularity of the tides for months and months. Had they enjoyed the same facilities for becoming familiar with the circuit they would have run France very close indeed.

MARINE GAS ENGINES.—PART II.

THE "CAPITAINE" SUCTION-PRODUCER.

Producer Gas Plants.

A GAS producer primarily differs from the ordinary fire-place in being enclosed in such a way that the necessary air for combustion can only enter from beneath. Only so much air as is actually required is admitted, and no air can find its way unconsumed through the fuel. The fuel, instead of being coke, is usually anthracite—a non-bituminous substitute—but were it not for the difficulty of extracting the tar and clearing the gas, practically any kind of coal could be used.

The action of the earliest producers was as follows:—The air, in passing through the red-hot anthracite, had its oxygen absorbed by the carbon (liberated from the fuel) to form carbonic acid gas (CO_2), and this gas, in passing upwards through other layers, absorbed more carbon, and became converted into carbon monoxide (CO)—the gas then used.

The manufacture of producer gas in the way described is, although simple, very inefficient, because, of the total volume of gas taken from the producer, no less than 66 per cent. is nitrogen—the non-combustible constituent of the air—and is, therefore, useless. It was also found that a considerable amount of the fuel was wasted in raising the temperature of the producer, and of the gas generated, in it to a needless extent, no less than 30 per cent. of the available energy in the coal being unavoidably expended in this way.

"Water" Gas.

The next step in the development of such an apparatus naturally consisted in attempts, not only to eliminate the useless nitrogen, but to overcome the heat losses above referred to, and, as a result, the gas plant, which produces what is now known as water-gas, was evoked. The main difference between it and the earlier apparatus was the substitution of steam for air. The anthracite was first made incandescent by a current of air—the resultant gas not being used—and a jet of steam was then passed through the hot fuel. The steam is thus decomposed, and the oxygen in the steam combines with the carbon to form carbon monoxide (CO), while the hydrogen, which is merely liberated, comes off with it. Both these gases are suitable for use in an engine, and

therefore, this form of producer has much to commend it. The reaction in the producer, however, is such that more heat is required for decomposing the steam than is evolved by the combustion of the anthracite to form carbon monoxide. The fire, therefore, goes out if steam alone is used, and the steam has to be turned off at intervals, and the fuel again raised to incandescence by a fresh supply of air. The

disadvantages of such an intermittent action were hardly to be overcome, even by the use of two or more producers to form a complete plant, and the latest form of producer is a compromise between the two systems. In the action of a present day producer, there is a constant supply both of air and steam. The reactions in this form of producer will be clear in the light of those which took place in the two previous cases. In the first case, there was too much heat, in the second there was too little, whereas now it is possible, by regulating the proportion of air and steam, to ensure that the producer shall be working under very efficient conditions. The resultant gas—inseparably connected with the name of Mr. Dowson—is theoretically composed of about 39 per cent. of carbon monoxide, 16 per cent. of hydrogen, and 45 per cent. of nitrogen, though it varies considerably, and contains other constituents.

Suction Producers.

The original methods for obtaining Dowson gas entailed the use of a separate boiler for supplying the steam, some form of fan for supplying the air under pres-

sure, and also a more or less large reservoir for storing the gas produced—altogether a very roomy plant. In 1888, however, M. Bénier introduced a form of producer in which the suction of the engine was used to cause sufficient air to pass through the fuel, and the boiler formed an actual part of the producer. Thus, instead of three independent elements, there became only one, and that a comparatively compact apparatus. This was not the only advantage, however, for a suction producer plant required no reservoir in which to store the gas. Directly the engine stops, the production of gas stops too. This is a particularly important point, for safety, because carbon monoxide is very poisonous, but is odourless.

(To be continued.)

Fig. 2.—View showing a 70-h.p. Capitaine marine installed in Gassschlepper I.

THE 1905 DE DIETRICH CARS.—PART II.

The Frame, Axles, and Wheels.

REFERRING more especially to Figs. 1, 2, and 3, the main-frame is formed of pressed nickel steel with tapering side-members that curve inwards just behind the dashboard, so as to allow the front wheels to have a wide steering lock. There are two main intermediate cross-members, S^1 , which are formed by tubes, and these serve to support the gear-box. There are also other cross-tubes for supporting the petrol-tank, A, and for carrying the three pedals (L, P, and K^2). The frame is, as usual, mounted on semi-elliptic side-springs, those at the back—which lie outside the frame—being no less than 4 ft. 6 ins. long. The substantial forgings that form the axles have an \mathbf{I} cross-section, and the back-axle is connected with the frame by unusually deep pressed-steel radius-rods; the front axle has its forked steering-heads formed on the stub-axles. The road-wheels all

The Engine.

A single casting forms each pair of cylinders, and is so shaped that the inlet-valves fit down into place above the pistons. The valves lie, however, to the right of the centre, and they are held down by the induction-pipe-fittings, C, to which the induction-pipes, C^1 , are bolted. There is nothing unusual about the arrangement of the exhaust-valves, for the stems of these project downward through their valve-chambers, and have easily removable inspection covers, B^2 , above them; they are on the left side, and are operated direct from the main cam-shaft. Between the inspection-plugs, B^2 , and the induction-pipe-fittings, C, are compression-cocks, H^7 , that allow paraffin to be introduced for cleaning the pistons, and, fitting at an angle through the cylinder walls, on the right side, are the low-tension igniters, D. Beneath the rearmost exhaust-valve-chamber, is the pressure-valve, B^7 , that

A 16-h.p. De Dietrich Landaulette.

run on ball-bearings, and the cross rod that connects the two steering-heads together lies behind the front axle.

The engine is fixed direct to the main frame by six feet that project from the aluminium base-casting, and this casting has the steering-pillar bolted direct to it. In front of the engine, a honeycomb radiator is mounted, so that it forms the front of the bonnet, and the air is drawn through it by a belt-driven fan, as well as by the fan blades in the flywheel. The petrol tank, A, is held in place at the back of the frame by three straps, and it can, therefore, in case of accident, be easily removed for repair. The exhaust-box, B, is fixed across the frame just in front of the back axle, there is a large shield that extends from the front of the car beneath the engine up to the gear-box, and the pressure tank, H, in which the lubricating oil is carried, is fixed outside the frame on the "near" side.

causes the exhaust gases from that cylinder to maintain the required pressure in the petrol and oil tanks.

The inlet-valves, C^3 , which are operated from the same shaft as the exhaust valves, can be easily removed by taking off the three nuts that hold the fitting, C, down in place, and by slackening the two nuts that fix the induction pipe, C^1 , to it. The casting, C, together with the pivoted levers, C^2 , is then free, and either valve, C^3 , can be withdrawn. The levers, C^2 , do not act direct upon the valve spindles, but intermediate spring-plungers, C^2 , are introduced between these parts, and another feature is that the outer ends of the levers, C^2 , merely rest down upon the ends of the push-rods, C^1 , while the necessary adjustment for "setting" the valves is provided by short, hardened steel screws that pass through the levers.

(To be continued.)



Figs. 6 and 7.—Front view, and view from the left side, of the 24-h.p. De Dietrich Engine. In Fig. 6, the belt-driven fan and the chain-driven pump are specially prominent. In Fig. 7, one of the inspection-doors has been removed from the crank-chamber.

Figs. 8 and 9.—Views from the rear and from the right side of the 24-h.p. De Dietrich Engine. In the former, are seen the fan flywheel, the pressure-valve and a portion of the carburettor, and, in the latter, the igniters with their operating mechanisms are well in evidence.

Figs. 10 and 11.—The 24-h.p. De Dietrich Engine. In Fig. 10 is seen one of the cylinder-castings, with the induction-pipe-fitting (C) and the inlet-valves (C⁵) detached from it, and in Fig. 11, the complete engine is shown from above.

THE NEW MICHELIN TYRE FOR THE GORDON-BENNETT RACE.

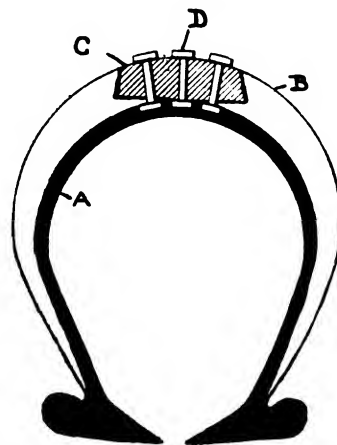
TYRES play such an important part in any race, and especially in the Gordon-Bennett Race, that a special interest is attached to the new tyre which Messrs. Michelin introduced primarily for this event this year. The tread of the tyre is of leather, and is steel-studded like an ordinary non-skid band, but the leather, instead of being superimposed, is let into, and vulcanised solid with, the actual rubber of the tyre, and the inner ends of the steel rivets are embedded in the fabric lining.

The relative depth of the leather is shown in the accompanying sectional drawing, which also makes clear the manner in which it is dove-tailed into the rubber. The idea has been to construct a tyre as a complete unit, which shall approximate very closely to the plain pneumatic in its obstacle-absorbing properties, while at the same time giving the obvious advantage of a steel-studded tread as regards adhesive power and reduced chances of puncture. Were it possible to successfully mount the studs directly on the rubber itself, this would probably have been done; unfortunately this is not possible, and it is therefore necessary to resort to leather as the most flexible material which possesses the requisite tenacity to withstand the tearing strain.

Completely encasing the rubber of the tyre with an external leather covering, has hitherto been the general

practice, but the bad radiating qualities of this material have to be taken into account when the conditions are

such as to make the tyres very hot. Naturally enough, the difficulties of successfully constructing such a tyre as that we have described are extremely great, and it may be taken for granted that Messrs. Michelin have not advocated its use without the assurance of its good qualities based on extended tests. If these tyres prove entirely successful on racing cars, we understand that they are to be put on the market for touring cars in the near future.



Cross-section of the new Michelin tyre, used in the Gordon-Bennett Race. A, fabric; B, rubber cover; C, leather tread; D, steel rivets.

SIR BOVERTON REDWOOD.

EVERY automobilist, and everyone who has taken any interest in the development of that great industry which has rendered automobilism a possibility—the recovery and refinement of petroleum—will be glad to find Dr. Boverton Redwood's name among the recipients of birthday honours, a knighthood having been conferred on him for his great services in petroleum development, and for the able advice which he has always been ready to tender to the various Government Departments, and particularly the Home Office. There are few who have received a recognition of the Royal favour more thoroughly deserved, and we tender to Sir Boverton Redwood our heartiest congratulations.

Wire Wheels for Motor Cars.—The results of some interesting experiments with wire and wooden wheels have been sent to us by Mr. S. F. Edge, and these appear to show that, so far as lateral strength is concerned, the former have a distinct advantage. The wheels were fixed in such a way that a pull could be applied to the tread of the tyre, the force being exerted in a direction parallel to the axle. An exceptionally well-made wooden wheel stood a pull of 1,733 lbs. before a slight crack developed in one of the spokes, this becoming more serious as the pull was gradually increased to 1,806 lbs. This was a dished wheel, and the pull was exerted in the opposite direction to the dishing, as it would be on the outside wheel of a car when turning a sharp corner. From 422 lbs. pull up to 1,733 lbs. the temporary set varied from .18 ins. to .192 ins., and the permanent set, after the test had been made, was .26 ins. Subsequently, at a pull of 1,840 lbs., two more spokes cracked. A symmetrical wire wheel, weighing 27½ lbs. as against 29 lbs., stood a pull of 2,025 lbs., and it was estimated that the strength of a dished wire wheel would enable it to stand a pull of 2,400 lbs. As Mr. Edge

points out, wooden wheels have a more pleasing appearance, and are easier to keep clean, than wire wheels; but, on the other hand, wire wheels are probably more durable, and are certainly easier to repair, than wooden wheels. To still further test the relative merits of wire wheels, he is now having a set fitted to his own touring car. The 6-cylinder Napier racer was, it will be remembered, also fitted with them in the recent eliminating trials in the Isle of Man.

Speed—and its estimation.—There is little wonder that so many cars are now seen fitted with speed indicators, for they only need to be tried once in order to demonstrate not only their utility, but even their fascination. Motorists, as well as other people, are in the habit of flattering themselves that they are accurate judges of speed, but their judgment is seldom more than approximately correct, for the effects produced by varying rates of travel are not proportional. We have recently had our attention—in connection with some tests which we have been carrying out—forcibly drawn to this very point, and we soon found the necessity of relying entirely on the instrument, for, even after a whole day's run on one particular car, it was impossible to depend on one's personal sense of speed—so great an effect have the varying surroundings when the car is travelling.

It is especially remarkable how deceptive speed becomes as soon as what might be called the "critical" rate for any given car is reached, for the impression then produced by a slight increase is grossly exaggerated. In our special articles dealing with these instruments we have also several times emphasised the importance of an open scale over the whole range of the dial, and this matter has been given particular attention by Messrs. Smith and Sons—whose instrument we so successfully employed on this occasion; their triple spring device, which gives this advantage, was well shown in our issue of April 1st this year.

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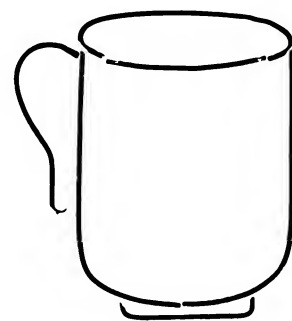
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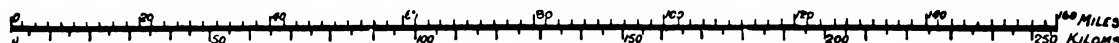
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CAUSE AND EFFECT.

BEFORE THE ORDER

MOTOR CARS IN HYDE PARK.

THE question of the exclusion of motor vehicles from Hyde Park "during Society hours" came up for discussion in the House of Lords on Tuesday, the Earl of Rosslyn having asked—

1. At whose suggestion, by what authority, or by whose initiative Hyde Park has been closed to motors and electric cars?
2. On what grounds the order has been issued?
3. Whether the order is aimed at any particular section of society, and, if not, whether electric carriages may not again be allowed by His Majesty's Government to enter the park during the hours at present forbidden to them?

To these questions Lord Windsor, as First Commissioner of Works, made the following reply:—

In the first place, the noble earl has asked me three specific questions. With his permission, I will answer the first question as it stands on the paper, and I will say that it was at my suggestion, on my authority, and on my initiative that motor cars were excluded from the park during certain hours. The second question is, On what grounds the order was issued? and my answer to that is that great inconvenience was felt by those using Hyde Park for various purposes in consequence of the noise, and the dust, and the danger, and the smell of motor cars, and in the interests of the large majority of persons using the parks it was thought desirable to impose certain restrictions on motor cars in the most crowded hours of summer afternoons. I regret that I do not see my way to any alteration in the rule as it now stands, or to discrimination between electric and other motor carriages. Then I come to the rule under which this authority has been exercised. That rule is No. 1 of the rules which were framed under the Parks Regulations Act of 1872, and amended on April 28th of last year. This first rule begins by saying that no stage coach, omnibus, &c., shall be allowed to enter the park. Then it comes to cycles and motor carriages:

Cycles, whether mechanically propelled or otherwise, and carriages and cars propelled or drawn by mechanical means, shall only be admitted subject to such regulations as shall from time to time be framed by the Commissioner of Works. That rule was laid on the table of the Houses of Parliament for a month, and under that rule regulations have been made. I may remind the House that a case was brought in the Courts of Law the other day to decide this very point—the legality of this regulation under the rule. The magistrate allowed a case to be stated for the higher court, and the Lord Chief Justice gave judgment, two other judges concurring, that it was absolutely legal. I have seen various comments on the meaning of these regulations, and it has been suggested that this was likely to be the beginning of a series of persecutions on the part of the Office of Works of motor cars, and that it might be followed by other more serious restrictions in various other parts of the parks. All that I can say is that nothing could be more ludicrously far from my intention. The crux of the question lies in whether discrimination can properly be made

AND AFTER.

between different kinds of motor cars. I readily admit that the hardship of such a regulation is felt by those who have disposed of their carriage-horses and carriages, and who only have an electric brougham. But the difficulty of discrimination is greater than it seems to anyone who looks upon it merely at first glance. I have had to go into this very carefully, and to consult the Chief Commissioner of Police on the question, and I am unable to convince myself that it is a proper thing to put upon the police and park-keepers a discrimination which, although I am told it may very easily be made in nine cases out of ten, yet would in the tenth case give rise to considerable difficulty. It would impose on them a responsibility which I should hesitate to advise should be imposed. As far as I myself am concerned, I have the keenest interest in motors, and hope to see them developed as rapidly as possible in this country and put to the best possible uses, but to say, as an Hon. Member of the House of Commons wrote to the papers, that the motor industry in Coventry is likely to be seriously imperilled if, during three hours of the day for three months of the year, electric landaulettes and carriages are excluded from Hyde Park, seems to me a statement so lacking in the sense of proportion that it scarcely needs to be taken seriously. I can only say that the whole question has been very seriously considered. This regulation, for which I am solely responsible, has been passed in the interests of the large majority of the persons using the parks, and if the public in general think I have done wrong it is I alone who am to blame.

MR. SCOTT MONTAGU asked various questions regarding the parks regulations and rules, in the course of replies to which Lord Balcarras stated that rules had to be laid before Parliament though regulations made under those rules need not be. Though this statement excited laughter, it is, of course, in strict conformity with the Lord Chief Justice's decision. In reply to Mr. Bowles, Lord Balcarras stated that he did *not* rely on the Lord Chief Justice's judgment in interpreting the Act, though why he should have said so is not clear, as the Lord Justice's decision is now a "ruling."

In the House of Lords on Monday last, Earl Russell called attention to the fact that in the town of Beverley, the Local Government Board had imposed a speed-limit on automobiles of five miles an hour, and he asked whether the Local Government Board had taken the advice of the Law Officers as to their power to impose varying speed-limits under Section 8 of the Act. Lord Kenyon, in reply, stated that the Board had not thought it necessary to consult their Law Officers as to the interpretation of the particular clause of the Act referred to.

THE ROYAL AGRICULTURAL SHOW.

THE sixty-sixth annual exhibition of the Royal Agricultural Society of England was held for the third year in succession at the Society's own show-yard at Park Royal. Misfortune has unhappily marred this attempt on the part of the premier representative body of our agriculturists to settle down in life after it had attained the respectable middle-age of three score years and three, and this latest show has been even more unsuccessful from the gate-money point of view than the two which preceded it.

From a motorist's point of view, perhaps, the show at its best contains but little of interest, although the application of the internal combustion engine to the operation of farm machinery must appeal to an enormously larger class, many of whom own, or will own, motor cars for pleasure purposes. One of the features which often characterises the introduction of self-propelled machinery into any new field is a disregard for sound construction of detail, and it is not altogether wonderful, therefore, that some of the exhibitors are not subsequently represented after their first essay. It is only necessary to look at the thoroughly high-class workmanship of the best portable and traction engines, such as those shown by Fowler, Aveling and Porter, Garrett, Marshall, Wallis and Stevens, Forster, and others, to appreciate the fact that properly-made machinery is essential in all cases where it is required to do heavy work of this class.

There never have been very many firms to take up the subject of the lighter forms of self-propelled agricultural machinery, and, roughly speaking, the Ivel agricultural motor has been unrivalled in this department (which is most suitable for the application of the petrol motor), although there have been from time to time other firms who have attempted to get the same results (see *THE AUTOMOTOR JOURNAL*, July 26th, 1902, and April 25th, 1903) with more or less inferior machinery. It is really extraordinary that some other makers—preferably those with a reputation to lose—do not seriously take up this work, because, unless agriculture in England is past revival, it would appear, from such comparisons as are available, that the general employment of self-propelled ploughs, cutters, binders, &c., would give a much-desired stimulus to the industry, even if only from the point of view of time saved and consequent greater independence of the weather.

This year, the Ivel machine has been adapted to use paraffin, Mr. Dan Albone, the inventor, having found that this engine works quite well on this fuel if a simple vaporiser is introduced into the induction-pipe. Vaporisers have the disadvantage of requiring external heat when starting, but this is perhaps a small matter on a farm, and there is the alternative—though less desirable—of starting cold on petrol while the exhaust gases from the engine have supplied the necessary heat.

Another self-propelled agricultural machine was that which is known as the "Universal," constructed by Sanderson and Co. The model shown was fitted with a very large 30-h.p. twin-cylinder vertical engine using paraffin as fuel. The engine is placed longitudinally in the frame, and the front end of the crank-shaft terminates in a pulley for general utility purposes. The differential countershaft has universal joints at each end, and the front wheels are driven directly from it through spur-gearing. The paraffin attachment is at present subject to patent formalities, and full particulars are therefore not yet available, but we understand that the paraffin is led directly to the perforated seat of the automatic inlet-valve. Petrol is necessary for the purposes of starting.

The advantages of motor lawn mowers have always been sufficiently obvious, and the best-known makers of lawn mowing machines have long been in a position to supply the self-propelled mowers from stock. Messrs. Green and Messrs. Ransome, Simms and Jeffreys were represented at the Show, a "thirty-inch" and a "forty-inch" being the largest models shown respectively by the two firms. The 40-in. "Green" model has a twin-cylinder engine which is fitted with high-tension magneto and also battery ignition. An epicyclic gear is employed in lieu of an ordinary main clutch, and is operated by a hand wheel. The propelling roller is chain-driven, and so is the cutter, but by an independent chain, which may be thrown in or out of gear by means of a jaw-clutch.

We have not previously seen the application of motor propulsion to lawn rollers, but Messrs. Banford and Perkins have now put such a machine on the market. The roller is water ballasted up to 3½ tons total weight, although larger sizes are also constructed. The water tank naturally dispenses with a radiator, although this is not exactly the type of machine on which details need be eliminated on the score of saving weight. The single-cylinder Simms engine is placed longitudinally in the frame, and drives a longitudinal shaft beneath it by spur gearing. This longitudinal shaft drives a transverse countershaft, and from one end of this countershaft a single chain passes to a chain-wheel on the rear roller. Two speeds are available, viz., 1 and 3 m.p.h., and steering is accomplished on the traction engine principle by chains.

Although steam traction engines predominate, the self-propelled lorry again takes an important place among the heavy vehicle section, those represented this year being Messrs. Mann, Beaufort, St. Pancras Engineering Company, and Allchin. The last-mentioned firm exhibit this class of vehicle for the first time, their previous experience having been derived with traction-engines.

Several firms exhibited portable petrol-engine plants for general utility work on estates, and among these mention may be made of Messrs. Merryweather's pumping machinery and estate fire engines, all of which have been dealt with from time to time by us.

It is, perhaps, not altogether fair to speculate on the possibilities of a next year's Show at Park Royal, but the serious condition of affairs renders it extremely problematical, to say the least. Perhaps the principal advantage of holding the Show in London at all is the comparatively large export trade which the exhibitors are enabled to obtain from foreign agents in the metropolis. This has, however, no financial value to the Society, who are more concerned with the quantity than the quality of the visitors. If the Show should cease, we can only remind those who have hitherto regarded it as their only Show, that the automobile world has shows of its own at which agricultural motor machinery could undoubtedly be exhibited to advantage.



The Ten-Mile Park Limit.—The sequel to the judgment of the Lord Chief Justice regarding the order of the First Commissioner of Works limiting the speed of motor vehicles in the parks to ten miles an hour was played out last week. Our readers will call to mind that quite a large number of summonses were issued against automobilists for exceeding the ten miles limit. An appeal to the Divisional Court was taken in one of these cases—the one which the Lord Chief Justice and two other judges decided adversely the other day—the others being allowed to stand over until the Divisional Court's decision. These were accordingly brought up before Mr. Plowden, and he decided to fine all the offenders 20s. and costs in all cases in which the speed was below 20 miles an hour though above ten—a very sensible and equitable decision. Mr. Staplee Firth, who appeared for most of the defendants, then raised the question of the endorsement of the licences. The learned magistrate said that the peculiar, he evidently seemed to think the ridiculous, wording of that particular section of the Act, gave him no choice in the matter, and that he was bound to insist on the endorsement, but he stated that he sympathised with the victims who had to suffer the endorsement, and expressed the opinion that the onus placed upon the magistrates of compelling such endorsements by the Act of 1903 was incomprehensible, and added that the endorsement of the licence for such offences was so ridiculous that if he were a motorist himself he would not care personally if his licence was full of endorsements.

THE proposal of Mr. Timothy Davies to apply to the Local Government Board to limit the speed of motor cars in the metropolis to ten miles an hour, came before the London County Council at its meeting on Tuesday. It met with no success, being contemptuously overridden by a motion to proceed to the next business of the day, which was carried by a large majority.

IN the House of Commons on Monday, Mr. Wason asked the Secretary of the Local Government Board if he would consider the expediency of empowering magistrates to impound offending motor cars for a period up to six months where breaches of the law had been committed. To this Mr. G. Balfour replied that the matter would be considered during the enquiry which it is proposed to institute into the working of the Motor Car Acts, which he said would be held this year.

AERONAUTICS.

As shortly chronicled by us last week, the Lebaudy airship has had a record trial, keeping longer in the air than ever before—3 hours and 11 minutes in all, and circling to and fro between Moisson and Freneuse, and repeatedly rounding the clock tower of the latter townlet, and returning to its starting place again a number of times. These evolutions were carried out with the wind blowing 8 miles an hour, and the great airship obtained a velocity of 42 kiloms. per hour with the wind, and 18 kiloms. against it. That is to say, her average speed through the air was 30 kiloms., or approximately 19 miles per hour. That an airship of this type succeeded regularly in accomplishing a speed of 11 miles an hour against an 8-mile wind, is a practical triumph of which there is no gainsaying the importance. So great is it indeed that it has been determined, as soon as the weather is favourable, to take the airship on a protracted tour through France, visiting the camp of Chalons to take part in the Military Manœuvres, and bringing her back again to her home at Moisson. Everyone interested in the progress of aeronautics will heartily wish the great undertaking every possible practical success, and will fervently pray that it may not be marred at the last moment by an accident like that which occurred about a year ago at Meudon.

THIS fine exploit has been rapidly followed by another. Starting from Moisson on Monday, it was determined to attempt steering the airship to a given point at a considerable distance, the spot selected being Meaux, which is almost in a straight line between Moisson and Chalons, and is 95 kiloms. distant from Moisson. The airship went straight as an arrow to Meaux, with the exception of a slight detour from the straight line made when passing over the Montmorency Forts to the north of Paris. The point selected for descending upon was the officers' race course at Meaux, and thither a number of men in the employ of M. Lebaudy had been dispatched to arrange for the descent. The airship ultimately alighted on the exact pre-arranged spot near the men who were waiting for it, the successful termination of its journey being witnessed by M. Pierre Lebaudy and M. Juillot, the engineer of the airship. The experiment was carried out under the supervision of Captain Voyer, who had been specially detailed by the War Office to thoroughly test the capabilities of the airship, and who made the journey on board her.

THE time actually occupied in covering the distance of 94 kilometres as the crow flies—it was probably as generally estimated quite 100 for the airship—was 2h. 35m., which, considering the wind was against it (though not blowing strongly), was a very fine performance indeed. Needless to say, the whole of Meaux turned out to see the airship when tethered to its mooring ground by a perfect network of ropes and cables, and guarded by a troupe of chasseurs.

THE airship at once commenced to take in supplies of gas and petrol, and at 3 o'clock on the following morning continued its journey towards Chalons in the teeth of the easterly wind, which had developed in force to such an extent that the airship could only proceed against it at about 8 miles an hour, from which we may conclude

that it was contending with at least a 10-mile wind. It beat against it triumphantly, however, and was finally brought to anchor over the Market Place of the little town of Ferté.

ALMOST contemporaneously, the veteran navigable balloonist, Count Zeppelin, has made another ascent with his great aluminium airship on the Lake of Constance. Count Zeppelin spent practically the whole of his private fortune on the manufacture of his first airship. This latter model, which has cost 200,000 francs, and has been built at the cost of a fund, to which the German Emperor, the King of Wurtemberg, and a number of other prominent personages have contributed, is of the same type as the first Zeppelin airship, but is provided with a more powerful motor, the present motor developing 80-h.p. It appears to answer well to the helm, and is thoroughly manœuvrable, but so far it has developed but a comparatively insignificant speed, and one certainly not sufficient to enable it to contend with the mildest of breezes.

MORE sensational experiments have been carried out by Professor Montgomery in America. He has designed a very practical form of aeroplane which resembles in general structure two huge curved wings designed to advance through the air, one might say like a bird with outstretched wings, flying sideways, a directing tail which is, roughly speaking, of semi-circular shape, being placed at the side of what would appear to be the span of the wings. The stability of this machine in the air is very marked indeed, and a most sensational experiment demonstrating this fact was recently carried out. Attached to a hot air balloon, and mounted by a skilled aeronaut and parachutist, the aeroplane was taken up to a height of some 4,000 feet, when it was cut loose from the balloon, and made a tremendous dive earthward. Soon, however, like the Alvares aeroplane in similar circumstances, it attained equilibrium and glided slowly in curving flight to the ground, the aeronaut succeeding in alighting at the very spot which he had previously determined to come down on. The capacity of this machine therefore for sustaining a man has certainly been demonstrated, the aeronaut in this experiment weighing 156 lbs., while the total weight of the aeroplane was only 42 lbs. Whether it will be capable of rising from the ground and of accomplishing motor-driven flight further experiments of course only can decide.

THERE is also progress to be chronicled in design and experimentation with other machines of the aeroplane type. Notable amongst these are a number of tests made on the Seine with a new machine designed by M. Archdeacon, which may be described roughly as resembling the former or Wright type of aeroplane with a similar arrangement tacked on at some distance behind, the whole machine, therefore, being very like an enormous box-kite. It is adapted to float on the surface of the water and has been experimented with by being raised into the air by means of a motor boat, La Rapiere, to which it was connected by a hawser. M. Voisin, as before, mounted the aeroplane, and conducted the manœuvres, but so far they have not been very remarkable or epoch-making.

RACES, RECORDS, AND TRIALS.

Some of the cars outside the Maynard Arms Hotel after the day's work.

A group of enthusiastic supporters of the Sheffield Club who took part in the day's sport.

SHEFFIELD AUTOMOBILE CLUB, PADLEY WOOD HILL-CLIMB.

Padley Wood Hill-Climb.—At Sheffield, last Saturday, the rain fell so unrelentingly during the whole morning and a great part of the afternoon that only nine competing cars put in an appearance at Padley Wood Hill, and none of the motor cycles were able to take part in the contest this year. The Sheffield and District Automobile Club made a new departure in connection with this annual event by excluding from Classes 1 and 2 all vehicles and cycles, respectively, used for trade purposes or dealt in by members in the trade, and instituting separate classes (3 and 4) for them. As events turned out, eight of the 29 entries in Class 1 competed, and none of the five cycles entered in Class 2 ran, while it was a "walk-over" for the solitary representative (a 14-h.p. Hallamshire) in Class 3, since the other car in that class failed to appear; this car's time was 9m. 26s., and its marks total 978.

Needless to say, the road up this exceptionally long and stiff, but extremely beautiful, hill was very heavy and very slippery, so that none of the cars were able to do thorough justice to themselves. The weather, too, had naturally a somewhat depressing effect upon intended spectators, though a fair sprinkling of enthusiasts had travelled out by train from Sheffield, and a few local people had assembled. The following table gives the times made by the various cars, as also the marks accorded them, these marks having been arrived at by the same formulæ that were employed by the A.C.G.B.I. in the 1903 Reliability Trials. Mr. F. Churchill becomes the holder of the Harvey Foster Cup for Class 1, and the other cup, presented by Mr. Harvey Foster for motor cycles, remains without a winner this year. After each car had completed the climb, carrying an official observer amongst its full complement of passengers, the majority of the officials, competitors and other members of the club met at the Maynard Arms for the usual friendly meal, during which time Mr. Cawood (hon. secretary) and Mr. Wade (recently hon. secretary *pro tem.*) were able to announce the nett times of each contestant.

Sheffield Hill-Climb. Table of Results, giving Times and Marks.

Owner.	Car.	Time.	Hill-Climb Marks.*	H.-P. shown by Performance.	Accuracy of Declared H.-P. Marks.*	Total Marks.
		h.p.	m. s.			
Mr. F. Churchill	12 Hallamshire	8 33	1,084	6.0	86	1,170
Mr. F. Churchill	15 "	8 26	1,075	8.9	95	1,170
Mr. J. Barber	20 Belsize	10 8	882	7.1	31	913
Mr. S. Pearson	12 Darracq	12 8	776	4.7	41	817
Mr. H. Schwab	6 De Dion	10 57	747	2.7	62	809
Mr. J. E. Evans	12 Darracq	13 24	703	3.8	22	725
Mr. T. H. Firth	12 Wolseley	14 47	638	3.9	24	662
Dr. Pearson	6 "	14 40	564	2.3	37	601

* The formulæ employed in the 1903 Reliability Trials was used for obtaining these results, but resistance to traction was taken at 70 lbs. per ton instead of 35 lbs.

Brighton Motor Week.—The motor boat trials, which were originally announced to be held in connection with this meeting, have been abandoned, and an extra day will therefore be devoted to the Madeira Road Races. There is also to be an exhibition of automobiles in the Dome and Corn Exchange. Mr. Alderman Blaker, the Mayor, takes a very enthusiastic view of the event, and anticipates the arrival of about 3,000 cars, which should give a magnificent stimulus to the trade of this popular seaside resort.

THE Henry Edmund's Hill-Climbing Trophy, originally announced to take place on July 12th, has been postponed for the time being.

MR. WEBB JAY on his 15-h.p. White steam car on Monday last covered 5.56 miles at the Morris Park Race Track, New York, in 5m. 1s., his best time for the mile being 49½s.

Gordon-Bennett Cup, 1906.—Formal decision was taken, after we had gone to press last week, by the A.C. de France to the effect that the club would not participate in the Gordon-Bennett Race for 1906, whether they secured the Cup this year or not. In voting, 23 of the Sporting Committee were in favour of the club abandoning participation, and 14 in favour of continuing to take part, 6 blanks being recorded. The question of France participating the following year in the race was left in abeyance. This decision has been arrived at in consequence of the French Club maintaining that they should be entitled to have a larger number of French cars in the race in proportion to their larger trade than the other countries who are entitled to run for the Cup.

The Marquis De Dion's proposal of running a big reliability trial in its place over about 2,500 miles on the Continent under the circumstances will probably be put forward in a modified form, whilst no doubt an endeavour will be made to establish the Grand Prix of the Automobile Club de France, at the Aix les Bains Automobile Meeting of 1906, on such a basis as to take the important place now occupied by the Gordon-Bennett Race. In this Grand Prix, as it will be remembered, the idea is that France shall have a very much larger preponderance of cars than any other country—an arrangement which may or may not be to the advantage or disadvantage of France in the long run.

It is significant that at the same time as the announcement of the abstention of the French from the Gordon-Bennett Race next year, the committee of the German Automobile Club are arranging to organise a big international race next year in Germany of the same character as the existing Gordon-Bennett contest.

Herkomer Trophy and Bleichröder Race.—When entries closed last week for these events, 96 cars had been entered for the Herkomer Trophy. The motor bicycle race, which will be held at the same time, has brought in 50 entries, whilst for the Bleichröder race seven racing vehicles from 70 to 130-h.p. have made formal entry. In the Herkomer list of entries, beside Prince Henry of Prussia's 40-h.p. Benz car, and many

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The Napier Racers.—"Selling Off."—We have received the startling information from Mr. S. F. Edge that the present well-known Napier racers are for sale, and can even be delivered to purchasers prior to the Brighton and the Blackpool meetings if desired. These cars include the 80-h.p. machine, driven by Mr. Cecil Edge, and that so successfully driven by Mr. Clifford Earp in the Eliminating Trials recently; the price of either is £800. Also for sale are Mr. John Hargreaves car, for which Mr. Hargreaves is asking £1,200; and the extremely fast 6-cylinder racer which has earned so great a reputation in the past, and was driven by Earp on Wednesday. The latter car is priced at £2,500.

One of two alternative explanations naturally suggest themselves either that Mr. Edge considers further participation in big racing events unprofitable, or that he sees his way to building cars which will have a much better chance of winning in the long-distance contests of the future. We learn from him that he holds the latter view. It is certainly characteristic of his usual policy to do a thing thoroughly if at all, even if it involves making a clean sweep, as in the present case.

powerful cars of the leading continental makers, are several British machines, including Mr. Edge's 50-h.p. Napier, a 35-h.p. Daimler, entered by Miss Maud Manville, a car of similar power by Mr. Edward Manville, and two more of the same type by Mr. Phillip Dawson and Mr. Percy Martin. Mr. Clarence Gray Dinsmore is represented by a 70-h.p. Mercedes, M. Paul Meyan, who has matched himself against Mr. Siddeley, by a 40-h.p. De Dietrich, and Mons. A. Dufaux by the 80-100-h.p. racer with which he had hoped to have made a mark in the Gordon-Bennett race on behalf of Switzerland.

Aix les Bains Tourist Trial.—The results in this event are announced as follows:—

Cat. 1.—1, Montaral (De Dion Bouton).

Cat. 2.—1, Perret (Peugeot); 2, Didier (De Dion Bouton); 3, Nieuport (Darracq).

Cat. 3.—1, Cormier (De Dion Bouton); 2, Cote (Pilain); 3, Huillier (Mors).

Cat. 4.—1, De Loys (La Buire); 2, Mottard (La Buire); 3, De Rothschild (Mercedès).

The special prize for teams is awarded to the De Dion Bouton Company.

Circuit des Ardennes (Belgium).—The entrance fee for the Ardennes Circuit has been fixed at 5,000 francs per vehicle up to July 15th. From that date until August 4th it will be 7,500 francs. In this fee is included the 100-franc tax of the Province of Luxemburg, imposed on each of the cars taking part.

By way of a reminder, the Ostend Automobile Week commences on Monday next, July 10th, when the kilometre speed tests will be run off, followed the next day by the 10 and 5 kilometre events for racers and tourist cars respectively, on the 12th by the Tourist Reliability Trial, and on the 13th the Standing Mile Speed Trials for racers and tourist cars is the attraction.

THE French Industrial Vehicle Trial promises to be of considerable importance, as already nearly 60 vehicles have been entered.

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When is a driver not a driver?—The London police are in a terrible quandary. Never have they had such a nut to crack before. To drive a motor car without a licence is, of course, as we all know, a seriously punishable offence. Nevertheless, a 24-h.p. Mors was driven all about London the other day by a driver who, there is not the slightest reason to suppose, has ever taken out a licence. Is the driver punishable or not? If he were human there would be no doubt about it; but the question is, is the driver human, and if he is not human, does the obligation to take out a licence apply, and if it is not complied with, is the omission punishable? These are some of the questions which the police are no doubt asking themselves apropos of the exploit of "Enigmarelle," the mechanical figure which daily appears at the Hippodrome. Accompanied by the inventor, he is stated last week to have walked down to the Mors garage in Shaftesbury Avenue, mounted a Mors car, and successfully driven it through Piccadilly, the Green Park, the Mall, Fleet Street, and the Embankment, a large crowd of people witnessing the performance at various points, and cheering enthusiastically.

THE ELECTRIC TRAMWAY AND RAILWAY EXHIBITION.

WE are glad to find that several of our British motor omnibus building companies, undaunted by the narrowness implied by the title given to this Exhibition, have on this occasion invaded the enemy's territory so far as to make a fair showing with their *non*-electrical, and *non*-tramway or railway, vehicles. It is, moreover, extremely significant that the promoters of the E. T. and R. Show should have found it advisable to include an illustration of a motor 'bus on the cover of their well-arranged and carefully-compiled catalogue, even though an ingenious attempt has been made in the preface to explain it away in these words :—

"Motor omnibuses ceased long since to be an alarming object to the tramway manager, who now recognises in them a useful ally, which will help to feed his lines, and run where, for special reasons, his tracks may not be laid. That the motor 'bus has a wide field of usefulness no one will be disposed to deny, but its limitations are such that no corporation or company need tremble for the security of its tramway investment where that has been made with reasonable care."

Apparently tramway men have *now*, at any rate, come to recognise that it is better to be on friendly terms with the very latest development of self-propelled traffic—a striking testimonial which needs no comment.

The exhibition, which opened last Monday and closes on Friday next (the 14th)—and is of an international

character—is the third that has been held, its predecessors having taken place in 1900 and 1902, respectively. As might be expected, it is not an event that is calculated to attract the general public as does an automobile show, and the Agricultural Hall is by no means filled to overflowing, either with exhibits or spectators. For motorists there are the motor 'buses and other commercial vehicles, there is an electric racing car—with an enormous bonnet full of accumulators, and the motors stowed away in the hubs of the front wheels—and there are an assortment of speed indicators, amongst which the Elliot motormeter is prominent. The Wolseley Company exhibit a double-decked 'bus which has already run about 7,000 miles in regular service in Birmingham, and they also have a single-decker outside the building for giving trial runs. Double-deckers are also shown by Messrs. Straker and Squire and by the Motor Car Emporium, while the latter firm stage a char-a-banc and a couple of petrol luries as well. Another char-a-banc is exhibited by Messrs. Durham, Churchill and Co., and Messrs. Blackwell and Co. have a petrol-driven trolley-ladder on their stall. The world-famed Vacuum Oil Company are, of course, well to the fore, as usual, while the important European firm, the Stern-Sonneborn Oil Company, show samples of their special lubricants.

1. Bomb Throwing. Waiting for the start.
2. Cars parading prior to the Appearance Judging.
3. The Judges at their labours.

LADIES' AUTOMOBILE CLUB GYMKHANA AT RANELAGH.

CLUBS AND ASSOCIATIONS.

A group of cars of the members of the North-East Lancashire Automobile Club at Mr. Fred Hodgkinson's residence, Higher Feniscloes Hall, Pleasington.

Aero Club.—Two balloons will be dispatched by the club at the Beckenham Flower Show on July 12th, and one balloon is to ascend at the Liverpool Polo Club Ground at Liverpool, on Saturday, July 15th, on the occasion of the Liverpool A.C. Motor Gymkhana.

The Automobile Association.—A meeting was held at the Trocadero on Thursday afternoon, the 29th June, for the purpose of forming an association of motor road users.

Mr. Charles Temperley was in the chair, and explained that the meeting had been called in consequence of another meeting previously held, when the question of forming the association was decided. He explained that the new association would have as its objects the protection and advancement of the legitimate interests of motorists, and in particular to assist in the enforcement of the laws affecting all users of the highway. He explained that the association would combat in every form restrictions on the fair use of the public road by motorists.

Mr. Charles Jarrott spoke in support of the formation of the association, and said that already a considerable number of gentlemen had joined. He believed that the only way to secure fair treatment was to fight for it, and fight hard, and give nothing away. It was intended that the new association should have a strong legal department for the assistance of its members, and that an active policy should be undertaken to see that not only were the laws affecting motor cars fairly enforced, but that other laws relative to the use of the highway by other vehicles should be enforced in a similar manner. He saw no reason why the membership of the association should not run into thousands, and as the subscription had been fixed at a very small amount, a very large number would be able to join who—by the subscription alone—are debarred from joining any of the existing clubs.

Mr. Walter Gibbons strongly supported the formation of the association, and stated that the rank injustice done to motorists at the present time called for unity between all automobile road-users. Unfair prejudice had been created against motorists, and an association was a great necessity.

Lieut.-Col. Mark Mayhew, Sir Archibald McDonald, and Col. Bosworth all strongly supported the formation of the association as fulfilling a big want.

Mr. S. F. Edge stated that he cordially supported the suggestion, and that the only way of securing proper treatment from the hands of the authorities was to see that the law was administered to everyone impartially, and that it was necessary for all automobilists now to make a bold fight, instead of the policy adopted up to the present of taking everything "lying down."

Further supporters in the names of:—Mr. Thring Robertson, Mr. H. S. A. Smith, Mr. Schlentheim, and Mr. C. W. Brown spoke in further support, and nearly all those present signed application forms for membership, and joined the association.

The chairman explained that the subscription to the association was 2 guineas, and that application forms and particulars could be obtained from Mr. E. A. Bowden, hon. sec., 45, Great Marlborough Street, W.

It was arranged that a general meeting of the members of the association, for the purpose of electing a working committee and appointment of officers, should be called for Monday, the 10th of July, at 5.30 in the afternoon, at the Trocadero Restaurant, and he hoped that they would persuade their friends to attend that meeting, and join the association. He also gave a general invitation to all automobilists to attend and enrol their names as members.

Berkshire A.C.—Members of the club lunched together at the small Town Hall, Reading, on Saturday last, when the chairman of the club, Major E. R. Portal, presided over a gathering numbering about one hundred, including many ladies. Field-Marshal Earl Roberts, K.G., K.P., V.C., president of the club, who was accompanied by Lady Aileen Roberts, was present. Earl Roberts, on his arrival, was received by the chairman, Lieut.-Col. W. Waring (hon. sec.), and the members of committee. Amongst those present were Mrs. W. Waring, Miss Melloney Waring, Mrs. E. R. Portal, Mrs. J. W. Ouvry, Mrs. Geo. Alston, Mrs. J. F. Ochs, Mrs. Walter L. Bourke, the Marquis of Downshire, Capt. and Mrs. Kenneth Campbell, Capt. and Mrs. E. F. Rhodes, Mr. and Mrs. Emile Garcke, Dr. and Mrs. J. Hopkins Walters, Mr. Oscar S. Thompson, Miss Muriel Thompson, Col. and Mrs. Fielden, Mr. and Mrs. E. S. Gooch, Mr. and Mrs. George Tydd and the Misses Tydd, Mr. and Mrs. Chas. H. Dodd, Mr. and Miss Vanderstegen, Mr. and Mrs. Stuart A. Ord Mackenzie, Mr. and Mrs. A. Kadford, Dr. and Mrs. John Phillips, Mr., Mrs. and Miss D. D. Coath, Mr. and Mrs. W. A. Farmer, Mr. and Mrs. W. St. Quentin Leng, Mr. and Mrs. R. Hughes, Mr. and Mrs. W. B. Secretan, General and Mrs. Waddington, Miss Lowain, Miss Koenig, Miss Pawle, Miss Royds, Miss Peek, Miss Prioleau, Sir William Farmer, Capt. J. T. Wigan, Major H. Caversham Simonds, Dr. G. C. B. Hawes, Messrs. C. A. and J. R. H. Prioleau, S. E. Garcke, Sidney Harrison, R. H. C. Harrison, A. Wombwell, W. H. Vincent, J. F. Hawkins, Reginald Powys-Lybbe, R. C. Thompson, W. Gratwicke Heasman, Seymour du Bourg, M.F.H., A. D. Selkirk, and W. A. Farmer.

At the conclusion of the luncheon, Major Portal expressed the pleasure it afforded the members to welcome Lord Roberts' first attendance at one of their functions. He also desired to take this opportunity of thanking Lord Roberts for consenting to become president of the club, of which the membership now exceeds one hundred.

Earl Roberts, who was very heartily received, stated that although he did not at present drive a motor car himself, he hoped soon to do so. It was his intention shortly to take up his residence at Ascot, which would enable him to be more regular in his support of the various club meetings. He was confident that county clubs, such as the Berkshire Automobile Club, were doing much good for automobilism by exercising an effective control on the behaviour of motorists within their respective areas. The motor car has already conferred great benefits upon the countryside, by enabling people to tour about the country more conveniently than had previously been possible, and there was every indication that the growing extension of motors of all types would steadily benefit all classes of the com-

munity. The adoption of motor omnibuses in London was a case in point.

Subsequently a garden party and reception were given by Captain and Mrs. E. F. Rhodes at Holme Park, Sonning-on-Thames, and Lord Roberts and Lady Aileen Roberts left for London shortly after 5 o'clock.

British Motor Boat Club.—The Lords Commissioners of the Admiralty have been pleased to issue a warrant, authorising members of the club to fly the Blue Ensign of His Majesty's Fleet. The warrant authorises the Blue Ensign, without any device in the fly, to be worn.

The privilege is a much coveted one, and this is the first occasion on record, we are informed, on which such a permission has been granted for vessels of so small a size.

Various concessions are granted by port authorities to boats allowed to fly the Blue Ensign; these include the use of the naval part of harbours, and in foreign ports this is of particular value.

The Lords of the Admiralty are watching with interest the development of the motor boat, and though they do not see their way at present to using them for naval purposes, there is no doubt that the granting of this warrant is due to the particular interest they take in the movement, and the part motor boats may play should war ever break out.

Ladies' Automobile Club Gymkhana.—Ranelagh, on Saturday afternoon, was the Mecca of the fashionable motoring world, for the principal event on the programme was the Ladies' Automobile Gymkhana. Last year Ranelagh was also the scene of an automobile gymkhana, but peculiar interest was imparted on the present occasion because the entry list was exclusively reserved for members of the Ladies' Automobile Club.

Eleven ladies entered cars, and the programme included three competitions of skill in driving, and also an appearance in suitable

former of these two appearance competitions was won by Mrs. Ernest Amsden with her 16-24-h.p. Germain, and the latter by Mrs. Claude Borrett with her splendid 22-h.p. Crossley. It is an ironical fate which bestows on Mrs. Claude Borrett a valuable prize for her handsome "turn out," and yet precludes her from using it during the fashionable hours in the Park. What is good enough to win a prize at Ranelagh might conceivably have been sufficiently inoffensive in the eyes of a less fastidious First Commissioner of Works.

Fresh from the morning rain—which at first looked as if it was going to spoil the proceedings by continuing all day—the grass lawn track was rather "heavy," and the larger cars experienced a certain amount of difficulty in getting away after any enforced stoppage. The restricted area at the far end of the course, too, put a premium on short wheel bases when the car turned about to come home, but several ladies displayed a quite professional ability in the manipulation of their change-speed-levers, and the use of the "reverse" in performing this manoeuvre.

The following is a list of the competitors, with the results of the respective events:—

List of Competitors.—1, Mrs. Ernest Amsden (16-24-h.p. Germain); 2, Mrs. Claude Borrett (22-h.p. Crossley); 3, Mrs. J. Foyster Bowen (18-22-h.p. Daimler); 4, Miss C. Browne (10-12-h.p. Cupelle); 5, Mrs. Nevill Copland (12-h.p. Talbot); 6, Mrs. Edmunds (20-h.p. Renault); 7, Mrs. Guy Hardy (10-h.p. Panhard); 8, Mrs. Herbert Lloyd (30-h.p. Daimler); 9, Mrs. Manville (16-h.p. Daimler); 10, Miss M. E. Morris (28-h.p. Daimler); 11, Mrs. Todd Newcombe (16-20-h.p. Richard-Brasier).

Bending Race. Eight entries (Nos. 1, 4*, 5, 6*, 7, 8, 9*, 11).—1st, Miss C. Browne (10-12-h.p. Cupelle); 2nd, Mrs. Herbert Lloyd (30 h.p. Daimler).

Crawling Race. Seven entries (Nos. 1, 4, 5, 6, 8, 9, 11).—1st, Mrs. Todd Newcombe (16-20-h.p. Richard-Brasier); 2nd, Mrs. Herbert Lloyd (30-h.p. Daimler).

Bomb Race. Seven entries (Nos. 1, 4, 5, 7, 8, 9, 11).—1st, Mrs. Manville (16-h.p. Daimler); 2nd, (Mrs. Todd Newcombe (16-20-h.p. Richard-Brasier).

General view by the Pavilion on the course.

Strawberries and cream in front of the Club house.

LADIES' AUTOMOBILE CLUB GYMKHANA AT RANELAGH.

Appearance Competition (cars and occupants suitable for touring). Six entries (Nos. 1, 4, 5, 6, 7, 8).—1st, Mrs. Ernest Amsden (16-24-h.p. Germain); 2nd, Mrs. Hertert Lloyd (30-h.p. Daimler).

Appearance Competition (cars and occupants suitable for the Park). Eight entries (Nos. 2, 3, 4, 5, 8, 9, 10, 11).—1st, Mrs. Claud Borrett (22-h.p. Crossley); 2nd, Mrs. Todd Newcombe (16-20-h.p. Richard-Brasier).

Lady Cecil Scott Montague distributed prizes to the winning competitors.

Ladies' A.C.—The committee's report for the past year states that the year has been a successful one. The membership list has been steadily added to until now it numbers 330. The financial position is in every way satisfactory, the income and expenditure account showing a considerable balance on the credit side. The club house has been well frequented by members and their friends since June, 1904, nearly four thousand of them having made use of the rooms.

It has been decided to form a motor club for Pontypridd.

North-East Lancashire A.C.—On June 22nd Mr. Fred Hodgkinson gave an "At Home" to the members of the club at his residence, Higher Feniscowles Hall, Pleasington, near Blackburn. The invitations were for 3.30, and soon after that time a large number of cars had put in an appearance. Altogether 20 cars were present, owned by the following members:—Dr. Paterson, 6-h.p. Humber; T. J. Hacking, 12-h.p. Gladiator; Mrs. W. Birtwistle, 18-h.p. Crossley landaulette; Dr. Stephenson, 12 h.p. Whitlock Astor; William Birtwistle, 22-h.p. Daimler; R. Spencer, 14-h.p. Minerva; F. J. Marwood, 12-h.p. Belsize; E. A. Riley, 18-h.p. Belsize; R. Clayton, 9-h.p. De Dion; W. D. Coddington, 14-h.p. Lanchester; H. Lonsdale, 15-h.p. Darracq; W. T. Entwistle, 8-h.p. Darracq; T. Saul, 10-h.p. Brown; T. Higham, 18-h.p. Belsize; F. Hodgkinson, 15-h.p. Argyll; R. Lord, 10-h.p. Vulcan; A. L. Marsh, 5-h.p. Rexette; A. C. Beard, 6-h.p. Empress; Dr. Fox, 18-h.p. Belsize; and Mr. E. N. Hodgkinson, 9-11-h.p. Clement-Talbot, who is not a member.

The Midland Automobile Club, at their meeting last week, voted the sum of 10 guineas towards the Legal and Legislative Defence Fund of the Motor Union. This fund now amounts to nearly £300.

Mrs. Todd Newcombe's car, a winner in the Appearance Competition.

LADIES' AUTOMOBILE CLUB GYMKHANA AT RANELAGH.

MOTOR CYCLING.

THE One-third Litre Consumption Trial, which is annually organised by *L'Auto* on the Paris Parc des Princes Track, is fixed this year for September 19th. The regulations are in the main the same as last year, the Trial being run over 100 kiloms. on the track, and change of drivers being allowed, but the machine must in no way be replaced. This year the number of entries for each make of machine is to be limited to four, as the principle of unlimited entries last year was tried, and it is this year thought advisable to give the other system a chance. As before there will be the challenge cup for regularity in running for specified "teams" of the same make.

A RACE for motor bicycles is being organised to take place in the second fortnight of September by *Les Sports* on the French Ardennes Circuit, which gives a course of about 75 kilometres, good roads, without neutralisation. There will be two classes, viz.: (1) for motor bicycles with a maximum weight of 50 kilogs. to race over a distance of 400 kilometres; (2) for motor bicycles with $\frac{1}{2}$ litre cylinder capacity over a distance of 300 kilometres. It has not been so far decided whether each of these is to be run in one stage or two.

L'Auto have also arranged for a similar event, with about 25,000 francs in prizes. Machines under 50 kilogs. can be entered, and the distance of the non-neutralised run will be 400 kiloms. The date suggested is the first part of October, and it is hoped to find a suitable course at Morvan.

Mrs. Todd Newcombe laden with her prizes.

APROPOS of the suggestion put forward by Mr. Weir in the House of Commons that a further tax should be imposed on motor cars, Mr. S. F. Edge writes to us that he sees no reason why people who prefer being propelled by mechanical power should pay more than those dragged by animals, which are in many cases uncontrollable. He adds that it would be more practical if Mr. Weir were to propose that a heavy tax should be levied on all car owners who employed foreign drivers, his reason being that the country has no real hold upon the latter, and that when they have made things too hot for themselves here by repeated negligence or furious and reckless driving, all they have to do is to return to their own country. There is undoubtedly a great deal in this contention. As a matter of fact, the automobilist already pays considerably more than the hippomobilist to the revenue. He has to pay the same amount annually in carriage tax, and in addition he has the expense of car registration and a yearly renewal of his licence, and, in most cases, the licence of a driver as well. Everybody, too, is agreed that the greater proportion of cases of furious driving are due to chauffeurs who take out cars without their masters, and there certainly seem to be good grounds for believing that in this respect chauffeurs of foreign nationality are the worst offenders.

MOTOR BOATING.

British International Cup.—Only three French boats, viz., De Dietrich VI., Hotchkiss III., and Loodit III., have been entered to take part in defending this Cup for France at Arcachon on September 11th.

On the other hand, six boats on behalf of England have sent in their entries to the British Club with the hope of representing Great Britain in fighting to bring back the Cup to England. These are the 40-ft. Saunders - built boat, fitted with a 180-h.p. Napier engine, entered jointly by Mr. Lionel de Rothschild and the Hon. John Scott Montagu; the second is Napier II., entered by Mr. S. F. Edge; the third is the 40-ft. boat built and engined by Messrs. J. W. Brooke and Co., and entered by Capt. B. D. Corbett and Mr. Mawdsley Brooke; the fourth is Hutton II., built by Messrs. Hart, Harden, and Co., and engined by J. E. Hutton, Limited; the fifth, "The Competitor" (Napier Minor hull fitted with a 100-h.p. Siddeley engine), entered by Lieut. Mansfield Cumming, R.N., Rear Commodore to the Motor Yacht Club, and the sixth is Lord Howard De Walden's featherweight Napier with Saunders hull and Napier engines.

The start of these boats in the Eliminating Trials for the honour of representing Great Britain takes place off Sea View Pier on August 1st. The course is about $2\frac{1}{2}$ miles long, and an excellent view of the race will be obtained from the pier.

The harbour officials at Southampton are taking great interest in, and are doing all they can to make a success of, the Solent Fortnight. It is hoped that dry dock No. 3 or No. 4 will be available for mooring the motor boats.

BRITISH INTERNATIONAL CUP.—Brooke I, the high-powered boat which has been entered by Messrs. J. W. Brooke and Co., of Lowestoft, for this Cup. Our photograph shows the huge engine being dropped into the Brooke boat on Thursday of last week. The boat will probably be able to have its first trial trip by the end of this week.

Motor Boats at Kiel Regatta.—The chief results in the races for motor boats on two days of this Royal regatta were as follows:—

Course Kiel-Eckernförde, 78 kiloms.

Bleichroder Cup, 18 to 25 meter boats.—1, Karin (400-h.p. steam); 2, Rover (150-h.p. steam).

Hohenlohe Cup.—1, Elise; 2, Knirps; 3, Muguette.

Daimler Cup.—1, Napier.

Course Kiel-Travemünde, 120 kiloms.

Emperor's Cup.—1, Karin.

Simon Cup.—1, Lord Howard de Walden's Napier (steered by A. MacDonald).

Napier, the only British boat present, succeeded in doing the fastest time, averaging 23 knots per hour, in addition to carrying away two first prizes of the meeting.

Aix-les-Bains Meeting.—Unfortunately, on the second day of the motor boat races on Lake Bourget, the marking of the course had shifted, and consequently the published times for the marine mile and kilometre can hardly be regarded as of any use. For the Quinones de Léon Cup, offered for boats using alcohol as fuel, there was only one starter, viz., Herald. The distance given in the programme was 62 kiloms., but upon re-measuring this, following a protest by the owner, it was found to be 600 metres in excess. Herald's time was 5h. 1m. 26s., whereas the maximum time allowed for covering the distance was 5 hours. Under these circumstances, the judges determined to award the Cup to the Herald.

Algiers-Toulon.—The official awards of the Committee for this motor boat race have now been issued. Madame Du Gast has been, so far as the Algiers-Mahon stage of the race is concerned, adjudged the winner. Madame Du Gast lodged a protest against Fiat on the ground that Fiat carried a crew of four only, instead of five according to the rules, and that she was not decked—also an infringement of the rules. It was suggested that in view of International courtesies these objections should be passed over, but Count Récopé reminded the Committee of the decision in the British International Cup whereby the trophy was awarded to Trefle-à-Quatre at the Cowes Meeting last year, in consequence of the innocent mistake which was made by the Napier boat, although her time was considerably worse than the Napier's. Count Récopé's view was shared by the rest of the Committee and therefore Madame Du Gast's Camille is adjudged the winner. It was determined, however, to admit Fiat into an "extra-reglementaire" class, in which she is awarded a prize. The 2nd prize goes to Mercedes C.P., the 3rd to Mercedes-Mercedes, the 4th to Quand Meme, the 5th to Heracles II, and 6th to Malgre Tout. The Mediterranean Cup, it has been decided, shall not be awarded this year.

One of the latest types of the new 10-h.p. 1905 De Dion Bouton models. The car is of the twin-cylinder type, fitted with metal-to-metal clutch and sliding spur-wheel gear and is owned by Mr. Walter Munn, who is seated at the wheel.

At the hotly-contested Finsbury election some 100 motor cars were employed in driving electors to the poll.

In the catalogue of Mrs. Brown Potter's furniture and effects at Bray Lodge, Maidenhead, Lot No. 694, the last, was a 7-h.p. Panhard Car.

At the annual general meeting of the Coventry Chamber of Commerce last week, Mr. Henry Sturmev, who represents the Duryea Motor Company on the Council of the Chamber, was elected a vice-president.

MR. J. A. BRODIE, Surveyor to the City of Liverpool, to whose experiments in combating the dust-fiend we have often alluded, has been asked by the City Council to arrange for the laying of 12 ft. wide tracks of asphalt along the sides of the main streets, to be reserved as much as possible for cycles and motor cars.

DR. HERBERT JONES, of Hereford, in a paper read at the provincial meeting of the Incorporated Society of Medical Officers of Health, held at Lancaster recently, entitled "The Public Health Aspect of Motoring," gave a most valuable testimonial to automobilism. In his opinion, the more fully horse traction is replaced by motor traction, the more disease, which is so greatly caused by the wholesale dissemination of organic material, will be lessened, while a not less important consideration was the advantage which would accrue to towns by the removal from their centres of all the horses now stabled there. The compensating disadvantage of the dust nuisance, Dr. Jones is confident, will be ultimately got over by chemists and engineers.

THE Motor Union is holding a great meeting at Chester, instead of Manchester, as previously arranged, on the 15th of July, which, it is hoped, will be the greatest gathering of automobilists that has yet taken place in the United Kingdom. All the burning questions connected with the movement are expected to be fully discussed, chief amongst them being the increasing severity of fines for offences under the Motor Car Act, police methods of prosecution, and the supineness of the authorities in taking any steps to organise a central control of the roads. The proposals to further tax automobiles are also expected to come up for discussion.

THE British Empire Motor Trades Alliance advise us that they have received an inquiry for the names and addresses of British firms who manufacture gear boxes, axles and steering connections.

MESSRS. THORNYCROFT have issued a new edition of their Handbook of Instruction to Drivers of Petrol Commercial Vehicles. The little volume is well arranged and suitably got up for the pocket. Users of Thornycroft vehicles will do well to see that their drivers are in possession of this useful work.

The above fine array of twelve motor omnibuses are a batch of machines supplied during the last few weeks to the London Road Car Company, Limited, by the Motor Car Emporium, Limited. A few dozen more batches of like character, which are in training for early delivery, will make an astonishing difference in the carrying capacity of the Company, and in the appearance of the traffic on the various routes which these cars are destined to serve.

Horse-Driving Road Hogs.—A very bad case of running down was recently reported to the Motor Union, as occurring on the main road between St. Albans and Barnet, in which the defendant was Joseph Elisha, a job-master, of Duncan Street, N. Two summonses were issued by the union—one for having prevented Mr. F. N. Kingsbury, of Perrymead Street, Parsons Green, from passing on the highway, and the other for having on June 4th furiously driven a carriage at Shenley.

Mr. Huntley Jenkins, for the prosecution, said that on the day in question Mr. Kingsbury, while driving a motor car between Barnet and St. Albans at Ridge Hill, came up to a party of beanfeasters in a brake drawn by four horses. Wanting to pass, he sounded his hooter, but instead of going to the proper side, defendant pulled his brake into the off side of the road, leaving no room for the motor to pass, although the road at this part was about 23 feet wide. The motor was driven behind the brake for 300 or 400 yards, during which time the occupants of the car were subjected to insults and jeers from the beanfeasters. After a time, defendant went to the proper side, and a man in the brake sitting beside the driver beckoned to the prosecutor to pass. While the motor was passing, the brake was wilfully pulled again to the off side, and two alternatives were offered to the prosecutor. He had either to smash into the brake and run the risk of injuries to the occupants of the car, or to drive on to the footpath, 10 inches above the level of the road, and damage the motor machinery. He selected the latter alternative. Mounting the path, the machinery underneath the motor was damaged, and the car came to a standstill. The driver of the brake and the other occupants knew what had happened, but they had not the grace to stop. They drove ahead, leaving the motor stranded on the path.

Amongst the witnesses who confirmed counsel's statement was Mr. F. W. Kingsbury, who added that two cyclists, who were unknown

to him, who had followed him from Barnet, came to his assistance. After helping to straighten his steering which was considerably damaged, and to get the car on the road once more—as the footpath at this place was ten inches above the level of the road—the cyclists kindly volunteered to search for the char-a-banc. It was ultimately discovered on a bye-road, and with the assistance of a policeman the name and address of the driver was taken.

Mr. C. A. Taylor, of Luton, one of the cyclists who assisted Mr. Kingsbury, said he was a witness of the occurrence, and volunteered his assistance to Mr. Kingsbury, and went in search of the driver of the char-a-banc.

For the defence, one of the beanfeasters, James Hursey, said that all the time the motor was behind the brake was on the near side. There was no room for the motor to pass the brake, the road was so narrow. He beckoned the prosecutor to pass, waving his hand in a forward direction over his head. By this he intended to convey to prosecutor that it was hopeless for him to pass unless he flew over the top of the brake.

The chairman said that in the view of the Bench it was a very bad case, and a serious accident had only been narrowly avoided. The maximum penalty of £5 would be imposed and 12s. 6d. costs, or the alternative of a month's imprisonment.

The second summons was withdrawn.

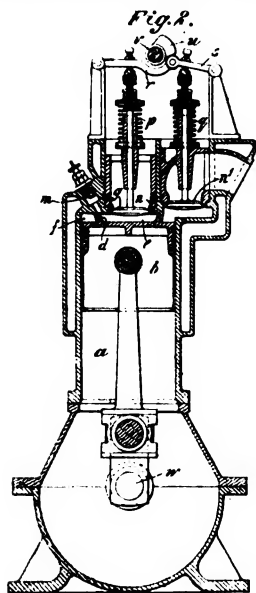
IN recent reliability trials for motor cycles, Eisenach to Berlin and back, the first seven competitors used Continental tyres, and of forty-three successful riders in the Berlin to Frankfort-a-Main trials, thirty-one were on similar tyres. Another big score was made by the makers of the Continental in the International Cup Motor Cycle Race on the Dourdan course, when the cycle of the winner, Wondrick, of Austria, was fitted with Continental tyres.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

10385. 5th May, 1904. Improvements in Oil Engines. James W. Cross, 4, Trafalgar Square, London. In this invention the engine works on a cycle consisting of compressing air, drawn in on the suction stroke, to a suitable pressure on a compression stroke, the air so compressed being divided into two separate portions, forcing a charge of oil into one of the two portions of compressed air, and effecting ignition of this charge, and then causing the ignited mixture of oil and air to mix with the remaining portion of air, so that the mixture is completely



burned, and the two portions form the motive fluid used for producing the next working stroke of the engine. There are seven figures. Fig. 2 is a sectional elevation in a vertical and central plane. The combustion chamber end of the cylinder, *a*, and the inner end of the piston, *b*, are respectively constructed with annular tubular extensions, *d*, adapted to telescopically fit when the piston arrives near the end of its compression stroke, and form two separate concentrically-arranged compressor air compart-

ments, *c* and *f*, the inner of which is provided with an air inlet valve, *g*, and with means by which a charge of oil can be forced at the required times by an oil pump (not shown). The space, *e*, is also provided with the ignition sparking plug, *m*. The piston on its suction-out stroke will draw in air through the valve, *g*. It will then compress the air, which is divided at the top of the compression stroke by the extensions, *d* and *c*, into two portions. The oil is then forced by the pump into the compressed air in the central compartment, and is ignited by the plug, *m*. The further movement of the piston on the outstroke permits the two compressed portions, charge and air, to mix together. This construction, the inventor claims, prevents too high a temperature in the cylinder, *a*. On the next exhaust stroke the products will escape by the valve, *n*. The inlet and exhaust valves are held closed by springs *p* and *q*, and are opened by separate levers, *r* and *s*, respectively, which are depressed by cams, *u*, on the half-speed shaft, *v*, which is rotated on the crank shaft, *w*, by bevel gearing. June 15th, 1905.

16959. 3rd August, 1904. Improvements in the Clutch, Brake and Change-Gear Mechanism of Power-propelled Vehicles and Vessels. F. W. Lancaster, 53, Hadley Road, Edgbaston, Birmingham. The object of this invention is to permit of the construction of a combined clutch and change-gear mechanism of the epicyclic type in which the power

Fig. 1

is received and transmitted direct without the employment of a peripheral transmission, and to construct a clutch and a brake which shall be capable of an indefinite amount of slipping without much wear or injury. There are seven figures. Fig. 1 is a longitudinal section in a central plane. The pins on which the planets, *b*, are mounted project from a face plate, *c*, which is arranged to form the cover of a box, *d*, in which the clutch parts are enclosed. The end of the motor crank shaft, *a*, and carries in driving-connection with it one of the frictional elements of the clutch, the other element being in driving-connection with the box, *d*. From the centre of the box, opposite the end of the motor crank shaft, the driven shaft, *e*, commences, and this shaft, the box,

d, and the face plate, *c*, are all secured together. It will thus be seen that the box that contains the clutch forms the means by which motion is conveyed from the change-gear trains to the propeller shaft of the vehicle or vessel. On the driven shaft, *e*, next the clutch box, *b*, is a sliding collar, *f*, operated longitudinally by mechanism from the driver's seat, and a number of small plungers or pins, *g*, pass through the wall of the box, and by applying pressure to the clutch rings within it cause the clutch to become operative. The brake acts on the driven shaft by reversing the movement of the lever, *h*, pressure is applied to the other series of rings by means of the gear wheel, *i*, and the car is brought to rest. The inner drum, *j*, of the Weston clutch is keyed to the end of the motor shaft, *a*. In the face of each ring are a number of radial oil grooves. The grooves or key ways on the inner drum, *j*, by which the rings are driven are cut to such a depth as to provide a free oil circulation through them. The whole arrangement is conveniently encased in an oil-tight casing, *k*, bolted to the crank case, *m*. June 15th, 1905.

Patent Specifications Published.

Applied for in 1904.

Published June 29th, 1905.

- 16,930. SOC. A. VENDRE ET CIE. Double helical driving gear.
- 16,959. F. W. LANCHESTER. Clutch brake and chain gear.
- 17,047. F. W. LANCHESTER. Governing arrangements.
- 19,134. FABRIQUE DE MOTEURS (ZURCHER, LUTHI, ET CIE.). Int. combin. engines.
- 27,271. W. B. MEGONE. Motor road vehicles.

Published July 8th, 1905.

- 6,504. G. F. STURGESS. Variable gears.
- 13,199. D. C. MASTER. Spring wheel.
- 14,721. T. H. COLE. Cooling cylinders.
- 17,325. J. A. HARRISON. Speed indicators.
- 17,511. F. R. SIMMS. Carburetors.
- 17,976. T. R. BEAUMONT. Wheels.
- 20,374. H. EDMUNDS. Dust preventers.
- 20,619. ALBANY MFG. CO., LTD., AND F. LAMPOUGH. Anti-vibration devices.
- 21,012. C. COULERU-MAURI. Speed indicator.

Applied for in 1905.

Published June 1st, 1905.

- 202. T. L. STURTEVANT. Carburettor.
- 936. J. B. BOWEN. Int. combin. engines.

Published June 8th, 1905.

- 2,678. A. E. SALT. Eye protectors.

The Automotor Journal, July 15th, 1905.

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GORDON-BENNETT RACE.—General view at the starting point at Laschamps.

Photo by Michelin and Co.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
July 19-22 ...	*Brighton Speed Races.
July 27-28-29 ...	*Blackpool Motor Meeting.
July ...	24 Hours Run (Motor Cycling Club).
Aug. 2-3 ...	*Motor Boat Trials (Southampton).
Aug. 11 or 18 ...	*Quarterly 100 Miles Trials.
Aug. 14-19 ...	Auto Cycle Club 1,000 Miles Reliability Trial.
Aug. 26 ...	Inter-Team Trial (Motor Cycling Club).
Sept. 2 ...	Skegness Races on Sands (Notts A.C.).
Sept. 9 ...	Brown Cup (Motor Cycling Club).
Sept. 12 ...	Auto Cycle Club Race Meeting.
Sept. 14 ...	*Tourist Trophy (Isle of Man).
Sept. 15 ...	*Daily Graphic Cup (Isle of Man).
Sept. 20, Oct. 24 ...	*Van Trials.
Sept. 23 ...	Scottish A.C. Hill Climb.
Oct. 4 ...	*Speed Trials.
Oct. 7 ...	Scottish A.C. 100 Miles Run.
Oct. 14 ...	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17 ...	*Quarterly 100 Miles Trials.
Nov. 17-25 ...	Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.	
July 15 ...	Boulogne-Folkestone (Motor Boats).
July 16 ...	Mont Cenis Hill Climb.
July 20-26 ...	Paris to the Sea (<i>Journal de L'Automobile</i>).
July 28-Aug. 8 ...	Paris Industrial Vehicles Trials (A.C. France).
July 27 ...	Gaston Menier Cup (Motor Boats).
July 31 ...	Anthony Drexel Cup (Motor Boats).
Aug. 6-7 ...	Circuit des Ardennes.

* Automobile Club of Great Britain and Ireland Events and Papers.

Aug. 10-11 ...	Paris-Deauville (Electric Vehicles).
Aug. 10-16 ...	Herkomer and Bleichroder Races.
Aug. 12 ...	International Cup for Motor Boats.
Sept. 1 ...	Lake Geneva Motor Boat Meeting.
Sept. 2-3 ...	Ventoux Hill Climb.
Sept. 2-10 ...	Brescia Automobile Meeting.
Sept. ...	Tri-Car Competition (<i>L'Auto</i>).
Sept. 10 ...	Vincenzo-Florio Cup.
Sept. ...	Tourist Car Trial (A. C. de France).
Sept. 3-10 ...	Royan Meeting.
Sept. 3-10 ...	Spa Automobile Club.
Sept. 11 ...	British International Cup (Motor Boats Arcachon).
Sept. 12-14 ...	Lake Lucerne Motor Boat Meeting.
Sept. 19 ...	$\frac{1}{2}$ Litre Consumption Trials (Motor Cycles).
Sept. ...	Motor Bicycle Race (French Ardennes).
Oct. ...	Vanderbilt Cup.
Oct. 1 ...	Chateau Thierry Hill Climb.
Oct. 15 ...	Gaillon Hill Climb.

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PASSING EVENTS.

Are Touring Car Speed Contests Advisable?

WE feel convinced that the policy of the Automobile Club in according its countenance, sanction, and support to high-speed contests for touring cars of the kind which will be held at Brighton next week, and which the town of Blackpool is straining every nerve to emulate and even surpass, is at the present time exceedingly ill-advised.

There are many other methods of benefitting the automobile cause which at present would be much more generally useful, and would possess the further advantages of showing that the Automobile Club are really anxious to help in removing possible causes of friction, and amongst these we would suggest popular demonstration of what the Club is doing in regard to combating the dust nuisance, and ensuring the suppression of the motor hooligan and the road hog. It is not so much mere speed as the dust produced, which excites bitter prejudice in country districts, and gives rise to such widespread hatred and hostility towards the car and its driver. In time, when road conditions are changed, other ideas will also have changed, and then possibly speed racing pure and simple may have its votaries without in any way raising the ire of the populace. Until that time, it behoves every automobilist to use every effort to quell the rising storm which, if ultimately bowed to by Parliament, may sweep away all the good which has been achieved up to the present. In the meantime it should not be surpassingly difficult to devise some means of encouraging the sporting side of the movement in a legitimate manner without enraging the masses.

Racing is all very well in the case of events like the Gordon-Bennett Cup, where the contest is confined to regular racing cars, all more or less monstrosities in their way, and which are practically not allowed, and as a matter of fact are hardly ever driven, on our highroads. Racing cars have been designed to show what triumphs in the attainment of high speed modern engineering can effect. They are quite outside the purview of the ordinary man in the street or on the road. It is a different matter when the Corporation of a large town and the Automobile Club, in concert with one another, arrange to demonstrate *urbi et orbi* that touring cars such as he may meet frequently can get up speeds rivaling those of the express train, and far surpassing the speed of the trains by which he is accustomed to travel.

Particularly at this Time of Year.

WE are now in the enjoyment(?) of the dog-days. It is the dustiest season of the year, when cars, driven at high speed along the high road, set up enormous clouds of dust, blinding and half smothering foot passengers, infuriating cyclists and the drivers of hippomobiles of all kinds and descriptions, filling their eyes and mouths with dust and setting their animals coughing and choking, and coating the natural green of our hedges with a drab neutral tint. On many roads, therefore, the inhabitants are going about with rage in their hearts, and, we fear, sometimes with brickbats in their hands. What will they say when they hear that at Brighton or Blackpool ordinary touring cars—unaltered in any way—have made speeds of 50 and more miles an hour? "No wonder," they will say, "that these things (with an epithet) raise the dust," and the first vow

they will make is that they will absolutely refuse to vote for a single Member of Parliament at the next election who has not solemnly pledged himself to abolish the nuisance.

How it will Hamper the Automobilist M.P.s.

IN Parliament, and out of it, feeling, as it always does in the dog-days, is growing dangerously hostile. We submit that it is not diplomatic, it is not far-sighted, it is not even common-sense, to deliberately encourage high-speed touring cars. It is all very well to say that no decent motorist actually indulges in such high-speed travelling on the roads, but are the public going to believe it with such object-lessons before them? When Mr. Arthur Stanley gets up in the House of Commons, at the time that the next Motor Car Bill is introduced, his power to prevent reactionary legislation, which would seriously cripple the automobile movement, will be likely to be decidedly hampered in consequence. If he is to be greeted with cries of "Brighton," "Blackpool," and "fifty miles an hour," such interruptions will be disconcerting, not to say embarrassing.

Speed-Concealment Useless.

IT will be little use for the Club to attempt to take refuge in the "ostrich policy," which we dealt with the week before last, of refusing to disclose the speeds attained. People will find them out—probably even exaggerate them—or else say that the Club has refused to publish them because they were too awful for publication. No, the whole thing at the present time is simply a mistake, and it is not as if anything useful were to be learned from it. It does not show that the tourist car that wins is the most durable, or that it is the vehicle best suited to everyday requirements. The presumption is, in fact, quite the other way. It does not show the maximum speed an automobile is capable of, for that can be far exceeded by regular racing cars, and it does not constitute a real car test. The whole business, in our opinion, is a mistaken line of policy, and the Club would be well advised to drop it, and drop it quickly.

But the Industry must be Convinced.

WE trust to the good sense of the leading members of the Club to see the matter in this light, but at the same time it is to be hoped that car manufacturers and agents throughout the country will take active steps to support our view, should the attitude of the Club not rapidly undergo modification, for it is they who will incur the danger of ultimately paying the penalty. If as the result of the weapon which will be placed in the hands of our opponents, some reactionary legislation is introduced—a return to the 12-mile limit for example—the effect on their business will be paralyzing. Competition naturally compels them, if such events are held, to enter for them, so they must see to it that the Club refuses to hold them. If they do not control the action of the Club, but merely follow it, they will be like the rats running after the Pied Piper of Hamelin, to their own undoing.

Too Much Gregariousness also to be Depreciated.

FROM the point of view of the dust nuisance and of conciliating public opinion as much as possible, big motor car meets such as have been arranged by the Motor Union, in which as many as 200 cars congregate at a given place and proceed in various directions into

the country, are, at any rate at this time of the year, and under existing circumstances, also to be deprecated in the very strongest possible terms. Even where everyone of those taking part in such re-unions drives with the carefulness of the ideal "considerate motorist," and where the utmost care is taken to avoid exceeding the legal limit and driving to the danger of the public, there is still bound to be irritation simply and solely from the enormous clouds of dust raised. It is a different question from the speed question, of course, and cannot, for one thing, be brought up so effectively in Parliament. But the frequent practice of motorists assembling together in large numbers on ordinary roads will certainly do as much as anything else to continue and increase popular irritation, and those having the real interests of the cause at heart will abstain from everything likely to do this.

A Substitute Required.

BUT when all is said, there is little doubt that something in the nature of a sporting contest—in which cars and drivers can be matched against one another—is necessary for the well-being of the automobile movement, and for the satisfaction of car owners. It certainly promotes general interest, and, what is at least of as much importance, it has the effect of making car owners maintain a lively interest in the development of different types of car. Doubtless the Automobile Club has felt this, and we should not be inclined to so forcibly point out the disadvantages attaching to the continuance of mere speed contests over what are practically private tracks, did we not feel convinced that they can now be replaced by something better. At present, as far as any rate as provincial clubs are concerned, the gymkhana is the only species of competition that to some extent fills the gap. But what is needed is, of course, contests of a kind which will both appeal to the manufacturer by enabling him to show the merits of his cars, and also to the private car owner who is not indifferent to the attractions of a sporting competition in which he stands a chance of coming off the winner and carrying home a prize. In fact, at the present day it is not really any longer necessary that *mere* speed should count for anything. Indeed it is opposed, when fully considered, to the sporting interest. But events which put a premium on the individual skill of drivers and upon the *all-round* merits of the car have much more to recommend them. Such events would require on the part of the drivers qualities much more similar to those by which a great jockey wins a race than to those which are called out by the type of motor car race with which we have been previously familiar; for the driver would have to spare his car as much as possible under circumstances in which he knows the fuel consumption is likely to be excessive, and press it as much as possible under circumstances in which he knows that he is getting good speed out of it at relatively small fuel cost. This is just the sort of thing that a jockey has to do in a long race where he has, under certain circumstances, to husband the resources of his mount, according to its personal equation, and it is the kind of thing that is not encountered at all on a race like the Gordon-Bennett. From this, as well as other points of view, we believe that the Tourist Trophy for a big event, or the principles on which it is being organised—modified so as to be applicable to contests on a smaller scale—provides just what is required. It certainly would tend to standardise

cars into certain well-recognised classes, and this in itself would greatly simplify the organisation of all local competitions.

The Tourist Trophy.

IN spite of the good reception which the proposal to hold a race on the lines of the Tourist Trophy received, when first enunciated, we fear that many people in the automobile world have merely the haziest of notions as to what the competition really is, what kind of cars are likely to win it, what kind of information it will provide for the benefit of the prospective buyer, and what amount of interest it is likely to evoke as a sporting event. At present, many people either know nothing about it at all, or consider it to be a sort of glorified fuel-consumption test on a large scale, skilfully stage-managed to look like a race. Needless to say, it is nothing of the sort, and there has been no intention of allowing the prize to fall to the car which merely uses the smallest amount of petrol—a relatively unimportant feature in cars designed for touring purposes. The Trophy will be awarded for vastly different merits than this. It is, indeed, primarily calculated to encourage the best all-round type of touring vehicle, and it may well not only become a regular annual institution, but even prove to be a far more attractive and useful national event than any which have been organised hitherto. So promising are the possibilities of this competition, that the misconceptions prevailing on the subject ought to be got rid of as widely and as quickly as possible, and it is with this object in view that we have considered the whole subject of the racing rules for touring vehicles in an article, of which we print the first instalment this week. This article is designed to remove the misconception that the event is in any way an extended economy contest, to point out how extremely useful the event may be in supplying information to the buying public, and to make certain suggestions as to how the event might be rendered still more serviceable. The line we have adopted is to consider, from an independent point of view, what are the essential requirements of a competition which can, at one and the same time, bring out the good features of the competing cars, and also secure that universal interest which can only be excited by some kind of race.

Co-operation Needed—and Invited.

THE success of the Tourist Trophy depends largely upon appealing to all, including the general public as well as that section who are motorists already. We feel, therefore, that the co-operation of everyone, either directly or indirectly interested in the automobile movement, is desirable, and we are confident that an extremely satisfactory type of contest, on the present Tourist Trophy lines, might be evolved in this way for future years. To start the ball rolling, we are this week publishing the first instalment of a special article explaining the whole question, and we invite our readers to let us have any views—either of agreement or disagreement—which may occur to them on reading the article. Nothing but good can come from the free expression of opinion on such an important subject, and we hope that the information contained in the article will enable all enthusiastic motorists to contribute to the discussion, so that it need not be confined to a comparatively small circle of experts. We think everyone will agree that an ideal racing event should fulfil four main objects:—It ought to be attrac-

tive as a spectacle to the general public, it ought to appeal to the best sporting instincts of owners and drivers, it ought to have the useful effect of encouraging the development of the best touring cars, and it ought to enable purchasers to ascertain the relative merits of the various makes of vehicle. It is with a view of showing how an event may be organised to attain these ends, and of how far the Tourist Trophy, as at present proposed, does so, that we have written the article. Of course, the subject is a very big one. It requires the most careful and concentrated thought, but its successful solution is one of the most important questions for the future of the automobile industry. We do not for a moment suggest that a final solution has actually been provided, but the suggestions and proposals put forward by us will, we hope, prove a useful basis for further progress and development. If the result is to extend and deepen the discussion, and render the proposals ultimately adopted thoroughly suitable to attain the end at which we all aim, we shall feel that we have not opened up our columns to the subject in vain.

For the convenience of those who are keenly interested, and since it is impossible for us to publish the whole of our article in this issue, we shall be pleased to forward an advance proof of the complete article to any of our readers who may wish to have it, and to receive their comments and criticisms in return.

The Alien Drivers' Bill.

So much attention has been drawn to the extent to which foreign motor car drivers who have no stake in the country, and who can retire to their various fatherlands when, owing to their depredations, Great Britain becomes too hot for them, that most people who have the interest of the automobile movement at heart, will be glad to learn that Mr. Scott Montagu is introducing into the House of Commons a Bill to the effect that a licence to drive a motor car shall not be granted by any County or Borough Council to any non-resident alien unless he produces:—

(a) Such evidence in writing from the police authority of his place of residence as the council consider sufficient that his character and conduct as a driver of motor cars has been satisfactory, and

(b) The licence or certificate (if any) authorising him to drive a motor car in his own country.

Owing to the advanced date in the session at which the Bill is being introduced, there is very little chance of its passing unless the House is practically unanimous in its favour, and this, we fear, it would be too much to hope for, but little doubt can exist that the Bill, if passed into law, would be for the general benefit.

The Dust Nuisance Not a New Annoyance.

CONSIDERING the manner in which the motor car has become identified in the Press and the popular mind with the raising of enormous volumes of dust on our roads, and the whitening of our hedges when they would otherwise be green, most automobilists will be thankful to Mr. Leveson Scarth for drawing attention to the fact that there were complaints in the old days of stage coaches of exactly the same kind. Miss Mitford, the well-known author of "Our Village," and the daughter of the well-known historian of Greece, writing in 1830, says:—

"Woe to white gowns! Woe to black! Drab was your only wear. If we happened to meet a carriage coming along the middle of the road, what a sandy whirlwind it was! What choking! What suffocation! No state could be more pitiable, except, indeed, that of the travellers who carry this misery about with them. I shall

never forget the plight in which we met the coach one evening in last August, steeds and driver, carriage and passengers, all in dust."

The difficulty was met on the Bath road at any rate by the establishment of water-carts (with pumps for supplying them at frequent intervals), a relic of the past which many of our readers have gazed upon no doubt with fond regret. That was a great undertaking for those days. Similar enterprise at the present day, a moderate expenditure, and a good allowance of commonsense, may ultimately get over the trouble now.

The Considerate Motorists' League.

WE have referred before to Mr. Scott Montagu's Considerate Motorists' League, approving, of course, of the objects aimed at by the organisation, and we are glad, therefore, to be able to record that a distinct forward step has been taken, and that at the private meeting recently held in the House of Commons the constitution of the League was provisionally settled, an executive committee appointed, and a badge chosen for the new organisation. The object of the League is, as our readers are aware, to promote courtesy to other road users on the part of all motor car drivers, and to curb recklessness and promote a standard of good behaviour on the road. A special feature will be made by the League of appealing to the professional driver so as to get him to conform to the principles of the League, which are set forth in a set of "maxims" to which we have already referred. The maxims are admirable in tone, but we would suggest, with all respect to the League, that one of the best methods of dealing with part of the difficulty would be for all their members to undertake to adopt measures that will render it impracticable for their drivers ever to take out their cars unless under the supervision of themselves or some members of their family. This course of action, if adopted by all the members of the League—and it is to be hoped that the League will before long include the great majority of car owners in the country—would have the effect of eliminating that most unpleasant and dangerous phenomenon of our high roads, the professional driver taking his acquaintances of the opposite sex out for a drive in his master's car, to his own great glorification.

Motor Ambulance Service.—The proposal of the London County Council to establish a general motor car ambulance service for London, which was referred to by us when it was first brought forward, was discussed at the Council meeting on Tuesday. It is proposed to arrange, in connection with the motor ambulances which will be electrically driven, one principal station and seven district stations, with which call posts, similar to those used for fire brigade service, will be set up in the streets at distances of half a mile apart. Telephones will be connected with these call posts, and the police will be provided with keys to enable the telephones to be used. The drivers of the motor ambulances also will be schooled in ambulance first-aid duties. It is further suggested that medical men should be provided with keys in case they desire to use them, while another suggestion is that the casualty house surgeon of the hospital connected with the ambulance should, as in Liverpool, go out with it, and enquiries are being made at the London hospitals as to how far they are willing to co-operate in this scheme. The estimated cost of the proposal appears moderate enough, being put at £13,000 initial cost, and £9,600 per annum for expenditure.

THE GORDON-BENNETT RACE.

Photo by Michelin and Co.

Théry, after his victory, being escorted to the Grand Stand by Mons. Brasier, arm-in-arm.

LAST week we gave briefly the times of the competitors in covering each lap as received by wire, but we have taken the opportunity to again publish this week these times, together with other particulars, so that we may place on record as complete a table of statistics of the race as is possible with the information available. All the times have been carefully revised, and, in addition, the average speeds over the complete circuit have been worked out. The times per lap are gross, no net times being available, but that they approximately represent the regularity of running, will be evident from

the small amount of total time to be deducted for delay in controls.

It is always impossible to tell beforehand who is going to win a race, and at the end of the first lap Lancia's high speed not unnaturally had its effect on the guessing of the spectators. An interesting feature of our table of results is that which shows the relative positions of the competitors lap by lap.

No change, it will be noticed, took place in the order of the first five of the winning cars during the last lap, but Duray's last round secured him sixth place, whereas

GORDON-BENNETT RACE.—Clifford Earp's 6-cylinder Napier and Bianchi's Wolseley Racer waiting their turn in the weighing enclosure. Bianchi is at the wheel of his car (No. 14).

GORDON-BENNETT RACE.—Weighing-in. The Richard-Brasier garage. Théry is seen in his shirt-sleeves to the left.

Photo by Michelin and Co.

at the end of the third round he was as far back as eleventh in the race. All those who started on the fourth lap finished it, and, as we have already said, in much the same order as they started, with the exception of Duray. Both Bianchi and Braun lost time on this last round, and altered their positions in consequence, Braun dropping down from seventh to tenth, and Bianchi from ninth to eleventh.

Much was said about the advantage to the French team, of their practice on the course, and it is interesting to note that although the remarks were essentially justifiable, the Frenchmen were not the only drivers who

GORDON-BENNETT RACE.—Caillots' Richard-Brasier Car in the weighing-in enclosure.

Photo by Michelin and Co.

GORDON-BENNETT RACE.—The Fiat team at the weighing-in.

Photo by Michelin and Co.

Photo by Michelin and Co.

GORDON-BENNETT RACE.—In the Grand Stand. Mons. Clementel, the French Minister of the Colonies, Madame Brasier and her son, are prominent figures in the picture.

improved upon the times made by them in the French Eliminating Race. Théry's net time in that event was 7h. 34m. 49s., but the first four drivers in the actual event—which includes the two Italians, Nazzari and Cagno, on their Fiats—all made better times.

With regard to fastest times, however, Théry's record of 1h. 36m. 25s., which he made in the Eliminating Trials, was hard to beat, and only the intrepid Lancia—who is popularly supposed to drive "all out" round every corner on the course—succeeded in lowering it by completing the tortuous circuit of 85.3 miles in 1h. 34m. 57s., which is equivalent to a speed of 54 m.p.h. Even Théry himself never approached his old record, and it was, one might almost say, a retrogression on his part to ever have put up a record which differed so much from his average.

Photo by Michelin and Co.

GORDON-BENNETT RACE.—Cagno on his Fiat waiting to be scaled.

GORDON-BENNETT RACE.—Blanchi on the Wolseley Car after rounding the "grand tournant."

GORDON-BENNETT RACE.—Clifford Earp on the 6-cylinder Napier taking the Baraque bend at top speed.

Théry's victory was a just reward for such skilful and well-judged driving. Nothing seems to disturb his calm confidence, and his capability for driving by the clock is little short of marvellous. Not once only, but throughout his racing career, has this been a feature of his performances, and his right to the nick-name, "Chronometer" Théry, is shown at a glance by the annexed table which appeared in the *Morning Post* :—

On the whole, the event was perhaps rather remarkable for regular driving than otherwise. Cagno on his Fiat, for instance, did not vary more than 4m. between any two laps, and the English team also made steady

Place and Date.	First Lap.	Second Lap.	Third Lap.	Fourth Lap.
	h. m. s.	h. m. s.	h. m. s.	h. m. s.
Mazagran, May 20, 190.	*1 23 0	1 19 0	1 16 0	1 26 0
Taunus, June 17, 1904	†1 26 57½	1 26 45½	1 29 56½	1 26 22½
Auvergne, June 16, 1905	*1 49 52	1 36 25	2 9 47	2 6 45½
Auvergne, July 5, 1905	*1 41 7	1 48 57	1 48 42	1 40 56

* Gross times † Net times.

There were six laps for the Mazagran circuit, and Théry completed the last two rounds in 1h. 23m. and 1h. 27m. respectively, which was well up to the average of the first four laps as shown in the above table.

GORDON-BENNETT RACE.—The Hon. C. S. Rolls on his Wolseley Car at the Baraque turning.

Photo by Michelin and Co.

GORDON-BENNETT RACE.—The crowd at the starting point by the Grand Stand.

running although it proved unfortunately too slow to place them in the front rank. The fact that 12 out of 18 starters finished (66 $\frac{2}{3}$ per cent.) is in itself satisfactory, and as a coincidence it happened that exactly the same number finished in last year's race, when there were also 18 starters. Five of the 12 competitors who finished this year also finished last year's circuit, these being Théry, De Caters, Braun, Cagno, and Werner.

One hour and thirty-five minutes separated Bianchi from Théry in this year's results, but a glance at our table will show how close was the struggle for second place

between Nazzari, Cagno, and Caillois. A considerable interval separates Werner from Caillois, and the times of the next six drivers are comparatively close together, so that those who finished appear to be divided into two classes, of which Théry and Werner are the respective leaders.

Information respecting the troubles of competitors *en route* are always difficult to ascertain in such events as these. Those cars and drivers who had not apparently vanished into thin air during the race made haste to do so immediately they had finished, carrying with them

Photo by Michelin and Co.

GORDON-BENNETT RACE.—Before the start. At the Michelin Company's "Tribune."

GORDON-BENNETT RACE.—Wolseley Car (No. 8), driven by the Hon. C. S. Rolls, at the Dunlop Tyre Company's depot at Pontgibaud. As at last year's race, Mr. Frederic Coleman, of the White Steam Company, will be seen acting as the "good Samaritan" in connection with the British cars.

the secrets of their day's run. Théry had one puncture, but otherwise his running was, as he himself expresses it in the columns of our French contemporary, *L'Auto*, "*très régulière et très heureuse*." Nazzari also suffered from one puncture, and also considers that he lost time in passing the American cars; while Cagno, the most successful of the Italians, had to tighten the belt drive of the mechanical lubricator.

Of the English team, the Hon. C. S. Rolls writes us that some time was lost on his first three rounds through having to clear out the dirt which found its way into the lubricator. Near Pontgibaud, during the third round, one of the driving tyres burst and the car had to be driven to

the next dépôt on the rim. Later on the other three tyres were changed, and the last round was made under exceptional difficulties, because the seat came adrift, which necessitated holding on by the steering-wheel and the brake-lever. Earp had trouble with the petrol-tank and with a shock-damper on one of the side-springs. Both Earp and his brother—who was acting as his mechanic—suffered terribly from the dust and tar getting into their eyes, so much so, in fact, that they could hardly see during the last lap. Some other drivers also experienced this difficulty, but those who knew the course had, not unnaturally, had goggles specially constructed to be quite dust-proof.

GORDON-BENNETT RACE.—Baron de Caters with his Mercedes Car at the "Continental" Tyre Depot near Pontgibaud. Compressed air for the tyres and fuel replenishments.

RESULTS OF THE GORDON-BENNETT RACE, AUVERGNE CIRCUIT, JULY 5th, 1905.

Place.	Country.	Car and Driver.	Tyres.	Gross Times. (Each Lap = 85.3 Miles. Complete Circuit = 341.2 Miles).				Deductions for Controls	Net Official Total Times.	Mean Speed.	Positions Lap by Lap.				Acceleration Times.			
				1st Lap.	2nd Lap.	3rd Lap.	4th Lap.				Total.	1st	2nd	3rd	4th	1	Speed. Kiloms.	Speed.
1	France	Richard-Brasier (Théry)	Michelin	1 41 7	1 48 57	1 48 42	1 50 56	7 9 42	h. m. s.	48.5	2	2	1	1	55	m.p.h.	52.3	
2	Italy	Fiat (Nazzari)	Michelin	1 40 13	2 6 12	1 50 26	1 50 18	7 27 9	8 7 19	46.6	3	5	2	2	66	81	41.5	
3	Italy	Fiat (Cagno)	Michelin	1 54 44	1 50 41	1 53 47	1 51 10	7 30 22	9 7 21	46.5	5	4	3	3	51	43.8	54.2	
4	France	Richard-Brasier (Cailliois)	Michelin	2 0 50	1 46 35	1 54 14	1 47 17	7 29 6	2 7 27	45.8	11	6	4	4	57	39.2	48.6	
5	Germany	Mercedes (Werner)	Continental	1 50 1	2 9 14	2 10 35	2 9 40	8 19 30	16 8 3	42.5	6	8	5	5	48	58	57.3	
6	France	De Dietrich (Duray)	Michelin	1 49 27	1 58 13	2 45 35	1 50 35	8 23 50	15 8 5	42.3	4	3	11	6	55	48.8	48.8	
7	Germany	Mercedes (De Caters)	Continental	2 1 9	2 5 59	2 13 49	2 13 14	8 34 11	23 8 11	41.7	9	9	6	7	51	43.8	53.3	
8	England	Wolsley (Hon. C. S. Rolls)	Dunlop	2 3 49	2 5 1	2 16 35	2 7 17	8 32 42	6 8 26	40.5	12	11	8	8	62	36.1	43.5	
9	England	Napier (C. Earp)	Palmer	1 54 11	2 13 29	2 20 38	2 11 8	8 39 29	3 8 27	40.3	7	10	10	9	50	44.7	54.0	
10	Austria	Mercedes (Braun)	Continental	1 55 4	1 56 14	2 28 45	2 13 5	8 33 8	0 8 33	40.0	8	7	7	10	52	63	53.1	
11	England	Wolsley (C. Bianchi)	Dunlop	2 12 49	2 1 35	2 16 38	2 7 37	8 38 39	0 8 38	39.5	14	12	9	11	63	35.5	44.2	
12	America	Pope-Toledo (Lytle)	Diamond	2 31 9	2 15 16	2 26 52	2 26 15	9 39 32	9 9 30	32	15	14	12	12	70	31.9	39.2	
—	Italy	Fiat (Lancia)	Michelin	1 34 57	1 42 11	—	—	—	—	—	13	1	—	—	50	44.7	56.0	
—	Germany	Mercedes (Jenatzy)	Continental	2 9 41	2 12 32	—	—	—	—	—	13	13	—	—	48	46.6	56.8	
—	Austria	Mercedes (Hieronymus)	Continental	2 2 25	—	—	—	—	—	—	10	—	—	—	55	40.7	49.8	
—	Austria	Mercedes (A. Burton)	Continental	2 37 30	—	—	—	—	—	—	16	—	—	—	55	40.7	56.0	
—	America	Locomobile (Tracy)	Diamond	2 42 51	—	—	—	—	—	—	17	—	—	—	63	35.5	43.5	
—	America	Pope-Toledo (Dingley)	Diamond	—	—	—	—	—	—	—	—	—	—	—	72	31.1	38.0	

Bianchi, who came in last of the English drivers, had the misfortune to have an exhaust-valve break, but his driving was nevertheless very regular throughout.

Although both Werner and De Caters made good running for the German team, Jenatzy's performance must have been a sad disappointment to many spectators, no less than to himself. He had trouble with a broken petrol pipe and a front spring among other things—including tyres—and eventually abandoned the race. De Caters had trouble with his valves, and, like Lancia, he had the misfortune to kill a dog.

Hieronymus, driving an Austrian Mercedes, was another competitor who had valve troubles, while Lancia—the only unsuccessful Italian—was put out of the race owing to his radiator being smashed by a stone. The American team did not fare well, although one of them succeeded in getting in at the finish. Dingley burst a water pipe, and retired on the first round, and Tracey broke a driving-chain and a clutch-pin.

The Montagu Trophy this year again goes to France for securing the first, fourth, and sixth places. England was the only other country to get her three representative cars in at the finish. Italy and Germany had two cars home, while Austria and America were represented in the final lap by only one car each. The Montagu Trophy was presented by the Hon. J. Scott Montagu, M.P., as a prize to be awarded to the best team performance in the Gordon-Bennett Race. No definite system of marking, however, has been drawn up for the purpose of enabling each competing country to be placed in any order of merit, and it is, therefore, only the actual winner which can be specified in this connection—the donor of the trophy reserving the right of final decision.

There were, of course, many notable persons in France who witnessed the race in a more or less official position, but the following were the delegates of the competing clubs on the International Commission of the Gordon-Bennett Cup:—

France.—Chevalier Rene de Knyff.

Germany.—Count de Sierstorff.

England.—Mr. J. W. Orde.

America.—Mr. Gray Dinsmore.

Austria.—Count de Kolowrat.

"Starting Prices."—Although no very serious betting takes place in connection with motor racing, it is—in the light of the results—interesting to notice the latest odds before the start laid against the success of each competitor, which were as follows:—Théry (evens), Cailliois (2 to 1), Jenatzy (3 to 1), Duray (5 to 1), De Caters (6 to 1), Lancia and Werner (10 to 1), Braun, Rolls, Cagno, and Hieronymus (12 to 1), Burton, Earp, and Bianchi (15 to 1), Lytle, Dingley, Tracy, and Nazzari (20 to 1).

Acceleration Times.—The column of acceleration times which we publish in our table of results must, of course, only be read in a comparative sense. There is no indication to show that each car had not previously settled down to its stride, since this could only be ascertained if a number of times had been taken at different distances from the start. In connection with the French Eliminating Trials, these times were taken over a distance of 400 metres, which would appear to be a much more suitable length for the purpose than those selected on the present occasion. Assuming, for instance, that each car finished "accelerating" exactly as it passed the 400 metre line, and that the rate of acceleration were uniform, then the rate of travel at that moment would be twice the average speed indicated in our table on

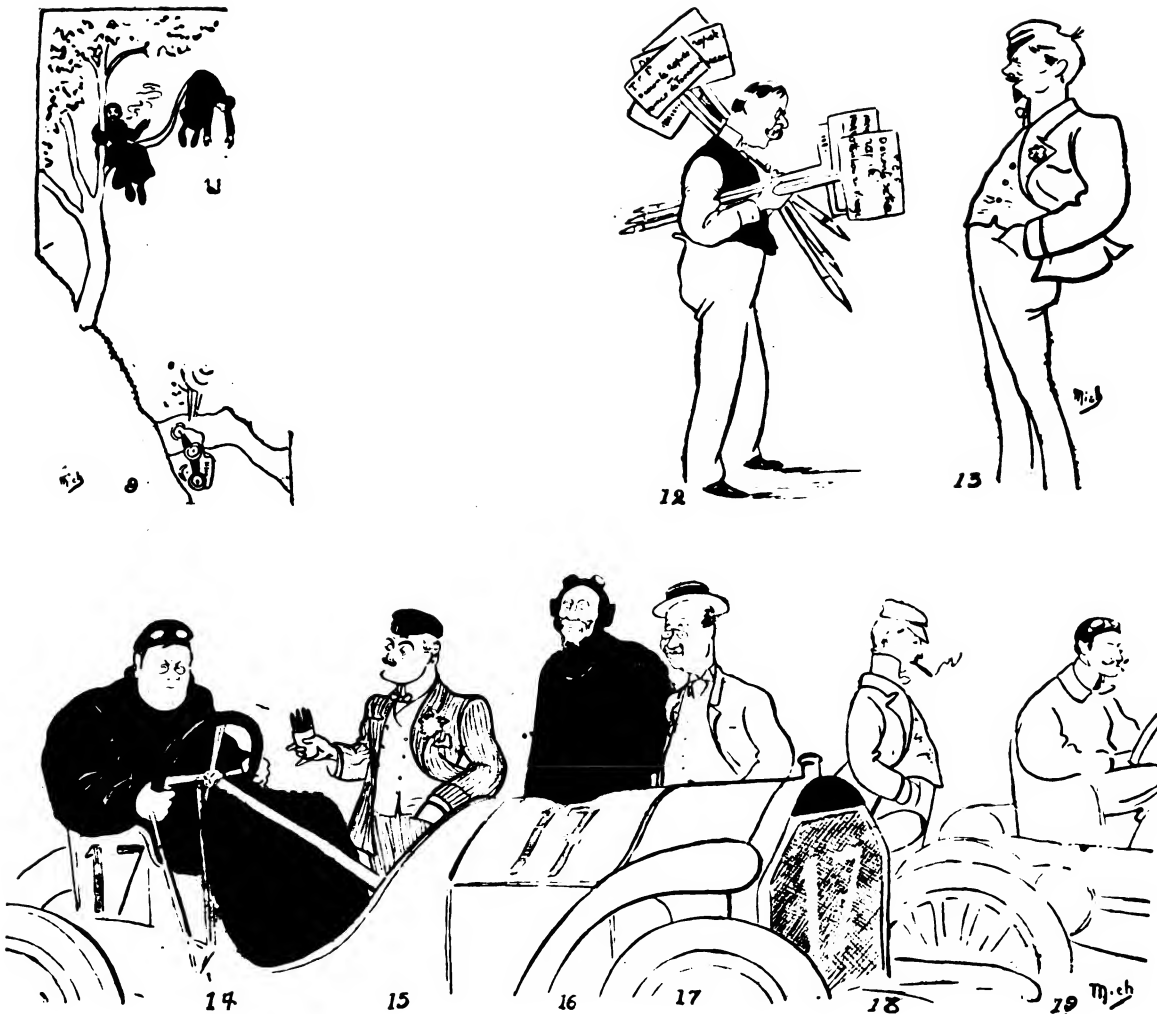
La Baraque. The village between Clermont Ferrand and the starting point at Laschamps. In the distance is the famous Puy de Dome.

The turning and rise before La Baraque.

The Puy de Dome seen from the Laschamps Plain, where the start takes place.

Finish of La Baraque ascent.

AUVERGNE CIRCUIT.



GORDON-BENNETT RACE.—A series of good-natured character sketches of prominent celebrities in connection with the Gordon-Bennett Race, by "Mich," of "Les Sports": 1. Chevalier Rene de Knyff; 2. Perignon; 3. Georges Le Roy; 4. Michelin; 5. Brasier; 6. Caillols; 7. Thery; 8. Duray; 9. Souvenir of the Eliminating Trials—Henry Farman (to his mechanic) "Rodrique, have you a light?" 10. S. F. Edge; 11. Heath; 12. The Touring Club de France; 13. Franz Reichel; 14. Alexander Burton; 15. Charley; 16. Jenatzy (Le Diable Rouge); 17. Jellineck Mercedes; 18. The Baron Pierre—19. The other Baron Pierre.

page 758 of our last issue. A car taking, say, 25 secs. for the distance (starting from rest) would thus have attained a maximum speed of about 72 m.p.h., and would have accelerated up to that speed at the rate of 4 ft. per sec. during every sec. It is interesting to notice that this would require a stress upon each driving tyre of about 140 lbs. Considering that the stress per driving wheel due to road resistance and windage is only some 40 lbs. with such cars, the additional strain under such conditions will be seen to be very considerable, and it is,

in fact, something like 20 per cent. in excess of that imposed on the tyres when climbing an extremely steep hill. How much driving tyres were called upon to stand in this year's race, however, is really demonstrated most forcibly when it is realised that quite twice as much stress is thrown upon the tyres when pulling up quickly for negotiating corners as when accelerating, and there were 177 corners on the course where it was necessary to slow down, to say nothing of the three controls.

GORDON-BENNETT RACE WINNERS SINCE 1900.

Year.	Course and Total Distance.	Winner.	Car and Driver.	Time.	Average Speed
				h. m. s.	m.p.h.
1900	Paris-Lyon (347.5 miles) ...	France ...	20-h p. Panhard (Charron) ...	9 9 0	38.5
1901	Paris-Bordeaux (329.8 miles) ...	France ...	40-h.p. Panhard (Giradot) ..	8 54 59	40.0
1902	Paris-Innsbruck* (386.2 miles) ...	England ...	40-h.p. Napier (S. F. Edge) ...	10 41 58	34.0
1903	Irish Circuit (370.6 miles) ..	Germany ...	60-h.p. Mercedes (Jenatzy) ...	6 39 0	49.5
1904	Taunus Circuit (321 miles)...	France ...	80-h.p. Richard-Brasier (Théry) ...	5 50 8	53.0
1905	Auvergne Circuit (341.2 miles) ...	France ...	80-h.p. Richard-Brasier (Théry) ...	7 2 42	48.6

* Part of the Paris-Vienna Race.

NON-SKID TYRES AND THE GORDON-BENNETT RACE.

NON-SKIDS and their efficacy in preventing a car from slithering crabwise over the temporarily greasy surface of roads has become a topic—now mellow with age—to which the touring motorist never turns a deaf ear. So much is at stake; he may not mind the varnish on his 800 guinea car, but he objects to break his neck, or possibly the case is *vice versa*, but the fact remains—a side-slip is an objectionable performance both when made publicly or privately.

Now it is not only skidding which harrasses the already occupied mind of the driver of a high-speed racing car, there is the rapid wearing away of the tyres when, failing to get a grip, they whirr round in space, and there is a possibility that they may prematurely burst in consequence. On a racing car, therefore, a non-skid of sorts is a desideratum even on a dry day, and it was for this reason that the new Michelin tyre was used in this year's Gordon-Bennett Race. With its construction our readers are already familiar from the illustrated description which we gave last week, but the following translation of a communication from M. Michelin is in itself an interesting commentary on the subject:—

"The ever-increasing weight and speed of motor cars had rendered the use of non-skids an absolute necessity.

MR. COWLEY LAMBERT, the Guildford magistrate to whose denunciation of the unfair methods adopted in motor car prosecutions we drew attention last week, has been asked by a local paper for his reasons for taking such an unusual step. He has refused to be

In turning a corner the centrifugal force, acting at the centre of gravity—which generally lies towards the back part of the car—tends to slew the car round about a point situated near the bonnet. If this effort is excessive the back wheels skid sideways over the ground, but with the heaviest part of the car in front it is, of course, the steering wheels which skid, and the front tyres which burst if the strain is sufficiently great. In both these cases the uncertainty of what is going to occur causes a possibility of accidents, especially at high speeds. This is overcome by fitting the tyres with metal studs which, getting a grip of the ground, prevent the car from skidding at all.

The first non-skids made had the studs fastened on the rubber of the tyre, but they did not give satisfaction because rubber was found to be insufficiently strong to prevent the studs tearing out. After this came the non-skid with a complete leather casing all round the cover. It held on, but was detrimental to the cover and inner tube. When on the road the cover heated, leather being a bad conductor of heat, and the heat, concentrating inside, baked the inner tube and made it so brittle and inextensible that it finally burst.

The Michelin non-skid tyre, which has now been placed on the market, aims at preserving the advantages of leather as a medium for the attachment of the metal studs, without at the same time having the disadvantages which are pointed out above. The leather band is only on that part of the tyre which touches the ground and the rest of the tyre is identical with a smooth-treaded one, thus allowing the heat to be well radiated. Besides this, the non-skid retains all the flexibility of an ordinary tyre. The studs around the tread naturally afford great protection to the tyre against punctures, since half of the exposed surface is imperforateable and the other half—being of leather—is very difficult to penetrate.

It is necessary to remember, however, that in using this non-skid, as all other tyre protectors, a car should be driven carefully, and corners should be taken at a reduced speed. The effect of starting quickly is the same with all kinds of smooth-treaded tyres—the wheels spinning without being able to get a grip on the ground. This, of course, causes the tyres to wear out quickly, perhaps even to burst, or to leave the rim. By attaching rivets or studs to the cover, however, the adhesion of the tyre to the ground has been much more perfect, but nevertheless care must be taken. If a brake is applied suddenly when travelling at say 50 miles an hour, something must go; either the road will be torn up under the rivets, or the mechanism will smash. In conclusion, it must be remembered that although the motoring public have an excellent article in their hands, they must not take advantage of it, but use it in a considerate way."

drawn at any length, and merely states that his action was due to his opinion "that the want of discrimination shown by magistrates and police in dealing with the question, is calculated to bring justice into contempt."

THE 1905 DE DIETRICH CARS.—PART III.

THE igniters, D, are, as will be seen presently, actuated by an independent cam-shaft from beneath. Each of them is connected by flat contact springs, D¹, with a rotary switch, D², that enables it to be cut out of action, for testing if required. The construction of the igniters is well shown in Fig. 12, and is very simple. The rocking-arm, D¹, passes through the main casting, D, carrying the contact-making arm at its inner end and the lever-arm by which it is operated on its outer end. The contact-arm is normally pressed up against the insulated plug, D³, by the flat spring, D², and the plug, D³, is so made that it can be screwed out separately.

pivoted lever, B⁶, lying in front of the crank-chamber. The sliding keys normally form a smooth surface where they pass through slots in the cam faces, but when moved along the shaft, their projecting portions come into play—lifting the exhaust-valves during the first portion of the compression strokes.

The ignition-cam-shaft, E¹, is only enclosed in the crank-chamber at its centre and at its ends, but it is driven by the same spur-wheels as those that drive the main cam-shaft. The wheel, F⁶, on the crank-shaft meshes with an intermediate wheel, F⁷, (Fig. 13), and it is this wheel that gears with those on the two cam-shafts.

Fig. 13.—The 24-h.p. De Dietrich Engine. On the left, are views from beneath and from the side of the upper portion of the crank-chamber. On the right is shown the crank-shaft, with its pistons and connecting-rods, and a view is also given showing the base-chamber from above.

The crank-chamber is formed by the two castings, F¹ and F², which are shown separately in Fig. 13. The former constitutes the upper portion, to which the cylinder castings are bolted, and the latter is provided with six feet, by which the engine is secured to the frame. The casting, F², which is lightened out considerably, forms the upper half of the three main bearings for the crank-shaft, F³, and it completely encloses the main cam-shaft, on which are mounted the exhaust-cams, B⁴, and the inlet-cams, B⁵. This cam-shaft is rendered accessible from outside by the two detachable doors, F², and, mounted upon it, are sliding keys that can be made to form half-compression projections for the exhaust-cams. These keys are controlled by the vertical rock-shafts, B⁵, that pass through the top of the crank-chamber, above which they are both connected to the

The ignition-cams operate the push-rods, E, in just the same way that the cams on the other shaft actuate the rods, B³ and C⁴, but a special timing gear is introduced between the cam-shaft, E¹, and its spur-wheel, by which it can be partially rotated, in one direction or the other, in relationship to that wheel. Three spiral keys are used for this purpose, their sliding-sleeve being controlled by the short shaft, E², that projects from the casing. The rock-shaft, E², is connected by the rod, E³, and the lever, E⁴, with the hand-lever, E⁵, (Fig. 3) above the steering-wheel.

Mounted centrally on the cam-shaft, E¹, is a spur-wheel that drives the magneto, E⁶, this wheel meshing with a corresponding wheel of equal size on the shaft, E⁷. The magneto spindle is driven by the shaft, E⁷, through a jaw-coupling that enables it to be removed at any time

quite easily; the magneto is bolted to the casting, F¹.

No other auxiliary ignition system is, as a rule, employed, although the supplementary battery apparatus introduced by Messrs. Jarrott and Letts can be fitted to the car if required. Except that a single spring serves for operating each igniter, and that the magneto is "timed" simultaneously with the ignition-cams, the system does not differ from that on other well-known cars. The type of switch, D⁴, used for each igniter is, however, particularly neat, and the igniters themselves have unusually substantial tappets. A main switch, D⁶, (Fig. 14), enables the magneto to be short circuited, and the igniters to be cut out of action.

The crank-shaft, F³, is a solid forging, to which the fan flywheel, F⁴, is bolted by means of a register flange. It has large bearing surfaces, it carries, inside the front end of the crank-chamber, a ball bearing, F⁵, to take the thrust of the clutch, and, on its extreme front end, is the fitting, F⁸, for the starting handle.

Between the pinion, F⁶, and the fitting, F⁸, is fixed the chain-wheel, G², that drives the circulating pump, G, and the pulley wheel, G⁶, for the belt-driven fan. An uncommonly useful feature of the engine is that the periphery of the flywheel is marked off in such a way as to enable the precise position of the crank-shaft to be ascertained at any time; not only are the two dead centres indicated in this manner, but the proper positions at which the igniters and the valves should be operated are marked as well.

The pump, G, is of the centrifugal type, and is made in such a way that the gland can be easily adjusted.

bourhood of the exhaust-valve-chambers, and is conducted back to the radiator from the opposite side of the cylinder-heads by the pipe, G⁴. In frosty weather, it is easy to drain the entire system, for not only is there a cock beneath the pump, but cocks, G⁸, are also pro-

Fig. 14.—The dashboard on the 24-h.p. De Dietrich Car. In this illustration, the auxiliary, gravity-feed, petrol-tank (A¹), the mechanical lubricator (H¹), the ignition switch (D⁶), and the exhaust relief valve (A³) are clearly visible.

vided at the bottom of each cylinder-jacket. The fan, G⁵, which is driven by a wide flat belt, runs on ball-bearings, and is fitted to the engine in such a way that the belt is kept at a proper degree of tightness by the spring, G⁷.

Lubrication.

The engine is fed with oil through the branched pipe, H⁵, from the lubricator, H¹, on the dashboard, the quantity passing being regulated by the adjustable sight-feed-fitting, H⁴. The oil is led to each of the four pistons as they complete their down strokes, but for the most part the oil is distributed over all the bearing surfaces by the movement of the working parts.

The lubricator is driven from the engine by a belt, and is kept full from the pressure-tank, H, which is fixed at the side of the car. The two pipe connections seen on the left in Fig. 14 connect the lubricator with the supply tank, and it is the pipe connection, H³, to which the feed-pipe, H⁵, is coupled up. The required amount of oil can be forced into the crank-chamber by the hand-pump, H², and there are cocks with gauges in the base of each half of the crank-chamber.

An additional oil-cup, H⁶, is also provided immediately above the central bearing of the crank-shaft, this merely leading into the chamber and not to that bearing alone.

(To be continued.)

Fig. 12.—Two views of a De Dietrich Igniter.

The driving-chain passes over the wheel, G¹, which, being smaller than the wheel, G², causes the pump to run at a high speed. The water is delivered by the branched pipe, G³, into both water-jackets in the neigh-



Motor Volunteer Corps.—The following announcements are gazetted this week:—Gentlemen to be Lieutenants: John F. Stanley, Earl Russell, Fred J. Frost, Harold R. Mosenthal; Charles Buttar, M.D., to be Surgeon-Lieutenant; the Rev. C. W. L. Evans is appointed Acting Chaplain.

Proposals are being submitted to the military authorities for the reconstruction of the corps, car owners to have commissions and motor cycle members to rank as sergeants, the rank of private being abolished.

THE disastrous hurricane to which we referred last week, and which overturned the tents of most of the campers out in the neighbourhood of the race-course, brought down the tent in which the weighing was taking place. After the committee and those present had been extricated from the *débris* and order to some extent restored, the Comte de la Valette, the chairman of the committee, who had escaped injury almost by a miracle, created a good deal of amusement by pronouncing with unruffled calm the famous words, "*la séance continue.*"

INDEX

MARINE GAS ENGINES.—PART III.

THE "CAPITAINE" SUCTION-PRODUCER.

OF such a nature, then, is the producer-gas, which it is now proposed to use in marine gas engines, and of such a character is the plant by which the gas may be made. It is only within the last four or five years that the suction-producer has been commercially manufactured in England, and in this pioneer work the well-known firm of Crosley and Co. has been, as usual, well to the front, and are now among the best known makers of this type of apparatus.

The "Capitaine" Plant.

What is probably the first application of a suction-producer to marine work, is due to M. Capitaine, of

gas is, of course, very hot, and in passing over the boiler it gives up a large part of its sensible heat to the water, and thus generates the steam necessary for the purposes of making the gas. The steam thus generated passes through a pipe, B', to the bottom of the producer chamber, where it is allowed to escape into the hot fuel.

The "Cooler" and "Scrubber."

Even after the gas has passed between the boiler tubes, B, it is still at a higher temperature than is desirable for satisfactory use in a gas engine, and in order to further cool it it is then passed through a chamber, C, where it is caused to give up its heat to the water which is sprayed into the cooler chamber. Baffle plates are arranged, it will be noticed, in this chamber, in order to make the gas take a circuitous path, and so to ensure that it shall have time to become thoroughly well cooled. The gas, as it leaves the cooler, is still unfit for use in the engine, for it will, undoubtedly, be damp, and, in all probability, it will have some solid impurities, such as particles of ash, &c., suspended in it. In order to remove these impurities the gas is passed through a mechanically-driven "scrubber," H. This device is a centrifugal apparatus which, by whirling the gas at high speed, causes the solid particles, and the water, to be thrown outwards, and deposited, so that the gas passes to the engine by the pipe, H', in a pure condition. The "scrubber" is driven by a belt which passes

Fig. 3.—Views of the Capitaine marine plant, showing the general arrangement of engine and gas producer, and also (on the right) the gas producer, A, with its cooling chamber, C, separately.

whose apparatus we are able to give photographs and line drawings. Our first illustration shows the boat "Capitaine," which has been fitted up with a suction-producer plant, and gives a very good idea of how small a boat may be and yet use this class of engine. Another illustration (Fig. 2) shows a view of a larger plant fitted in place in "Gasschlepper I.," Fig. 3 is a line drawing of the complete plant, and Fig. 4 is a sectional elevation through the producer apparatus.

Of these illustrations Fig. 4 gives the most comprehensive idea of the actual gas-making part of the plant, and, from what has already been said, the arrangement of the producer-chamber, A—shown on the left—will be readily understood. Besides this, however, there are two other chambers, C and H, which will be referred to presently. The producer chamber, A, is fed with anthracite coal through the doors, A², but a fire has, of course, first of all to be lighted on the fire-bars at the bottom. The producer is got under way by the aid of a hand-fan, which is used for blowing air through the fire, and the fumes that are given off during the operation are allowed to pass into the atmosphere. Under working conditions, the centre part of the producer is a mass of incandescent fuel, and the top part, surrounding the boiler, B, is kept filled with fresh coal which replaces the lower layers as they are consumed. In order to prevent radiation the centre part of the producer-chamber shell is "lagged" with fire brick.

The gas generated in the producer passes among the tubes of the boiler, B, and so into the pipe, A¹. This

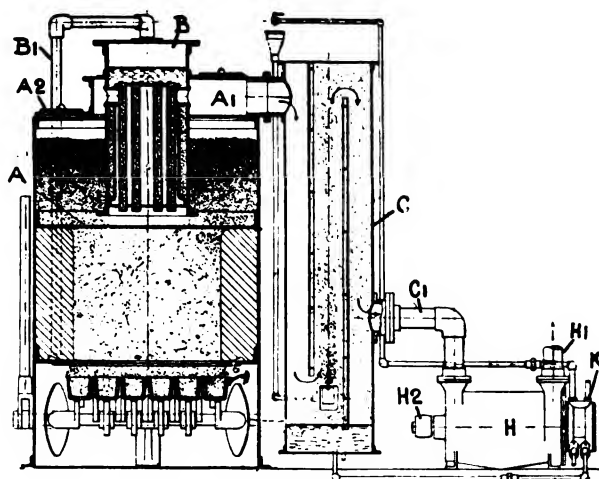


Fig. 4.—The Capitaine Suction Gas-producer. Sectional elevation through producer and the cooler, showing the arrangement of the boiler, B, inside the former.

over the pulley, H², from a corresponding pulley on the engine crank-shaft, A. Mounted on the end of the "scrubber" spindle, is the circulating pump, K, which supplies water for the cooler and for the cylinder jackets.

A feature of this particular form of "scrubber" is that the gas is delivered to the engine at a pressure which is

slightly above atmospheric. The actual means by which the gas is drawn off from the producer is not, therefore, the suction of the engine itself, but the exhausting effect of the "scrubber." It will be noticed, too, that the cooler chamber and the scrubber have, in themselves, a certain volumetric capacity which does, in effect, act as a reservoir for the gas, and prevents any too sudden changes taking place in the producer-chamber owing to rapid increase or decrease of the engine-speed or load.

The Engine.

It must be understood that the gas, as it arrives from the suction producer, is not used in the engine before it is diluted with additional air, sufficient to form an explosive "mixture." This operation is accomplished in the "Capitaine" plant by means of an automatic valve which is designed to compensate for any fluctuations which may be likely to occur in practice, such as, for instance, any increase or decrease in the pressure at which the producer gas is delivered from the "scrubber."

Comparatively few particulars are, at present, available as to the construction of the "Capitaine" engines—which are built in both two and four cylinder types—but Figs. 2 and 3 show the general lines of a four-cylinder engine of this make. The engine is said to run at a moderately high speed, and the magneto ignition is auto-

matically "timed" by means of a centrifugal governor. The arrangement of the overhead cam-shaft is visible in Fig. 2, and the valve-springs are prominent in Fig. 3. The engine driven "scrubber" can also be seen in Fig. 2, beneath the exhaust-box, which is supported on brackets secured to the engine casting. The engine is started by compressed air stored in a tank below the floor

Size and Cost.

As regards the cost of running, the data available show that a 10-h.p. engine consumes 0.5 kilogs. of coal per h.p. hour, the consumption for 30-h.p. and 100-h.p. plants being 0.4 kilogs. and 0.36 kilogs. respectively. With anthracite at 24s. per ton, the cost on the above consumptions is equivalent to 0.166d., 0.113d., and 0.102d. per h.p. hour for the three types of plant under consideration. The floor space occupied by a 25-h.p. engine is 2.4 ft. by 5.8 ft., and the head room required is 3.96 ft. With a 50-h.p. engine the length is 7.9 ft., but the other dimensions remain unaltered, while the weight is increased about 25 per cent. Engines of 25-h.p. have two cylinders, but the 50-h.p. size has four cylinders. It is interesting to note that J. I. Thornycroft and Co. have recently taken up the "Capitaine" marine plant in this country, and developments may, therefore, be expected to take place in home waters.



THE SIDDELEY-MEYAN MATCH.

THIS contest, the preliminary arrangements for which have excited considerable attention, actually started at 5 o'clock on the morning of Wednesday from Paris, Mr. Siddeley being represented by an 18-h.p. Siddeley car, and M. Meyan (that is to say France) by a 24-h.p. De Dietrich. The Siddeley car which is taking part in the contest has already run some 40,000 miles, and is, as a matter of fact, the first car of its type that was ever completed. The De Dietrich car, which is being driven by M. Meyan personally, has also a good record, having already covered 30,000 miles. The Siddeley car will be driven by Mr. M. Grahame White, of the A.C.G.B.I., who will be relieved on alternate days by Mr. V. G. New, of the Kent Automobile Club. The route, part of which will traverse the Alps, has been reduced at M. Meyan's request to 4,400 kiloms., and will cover almost every conceivable kind of surface and gradient, very beautiful scenery being passed through. We append the conditions which are regulating the contest, but it may be added that, in addition to these, it has been arranged that a seat on each car is to be reserved for a friend of the other competitor, who will act as "controleur" or observer. The gentleman who is acting in this capacity on the Siddeley car is to have a fair knowledge of the route, to prevent missing the way. The contest, which is for a stake of 10,000 francs, will be decided by the 26th of the present month, when the 4,400 kiloms. will have been completed. Both cars can use any tyres they like—French, German or English.

ROUTE OF SIDDELEY-MEYAN TRIAL.

July.	kiloms.
12th.—Paris to Boulogne, via Mantes, Rouen, and Dieppe	326
13th.—Boulogne to Sedan, via Lille and Valenciennes	320
14th.—Sedan to Luxeuil, via Nancy and Epinal	292
15th.—Luxeuil to Aix les Bains, via Lous le Saunier	330
16th.—Aix les Bains to Embrun, over Mont Cenis	287
17th.—Embrun to St. Raphael, via Nice	289
18th.—St. Raphael to Beziers, via Nimes	337

19th.—Beziers to Luchon	286
20th.—Luchon to Bayonne, via Col d'Aspin, Col de Tourmalet and Lourdes	268
21st.—Bayonne to Royan, via Bordeaux	312
22nd.—Royan to Nantes, via Les Sables d'Olonne	264
23rd.—Nantes to Brest, via Quimper	319
24th.—Brest to Granville, via Dinan	300
25th.—Granville to Trouville, via Trigny	304
26th.—Trouville to Paris, via Mantes	200

CONDITIONS.

1. The competing vehicles to be ordinary touring cars, capable of carrying four people. Every seat to be occupied during the trial. The cars to be driven by gentlemen, members of an automobile club.
2. The daily run to be about 320 kiloms. The total journey to be about 4,400 kiloms.
3. The competitors can start each morning any time after 5 o'clock, and must finish the day's run at 7 o'clock latest. From the point of departure to that of arrival the competitors have complete liberty as to pace and stops.
4. Repairs are permitted during running time only, and must be done with the touring kit, and without outside help, an exception being made for tyres.
5. The daily run will be divided into sections of about 50 to 60 kiloms. each. The competitors will be controlled in each of the sections, and the times noted by the observer in a book carried on each car. Each section must be traversed at a minimum average speed of 25 kiloms. per hour. A stop of two hours will be made for lunch. All control times and stops will be noted in the route book by the observers.
6. The car which fails to arrive at the last control at 7 o'clock will be disqualified, and loses the match. The car which fails most often to maintain the average speed of 25 kiloms. per hour in the different sections of the route loses the match. If the two cars fulfil the conditions of the match equally it will be declared a dead heat, and the stakes will be returned to each of the competitors.
7. In the event of illness, or unforeseen circumstances necessitating it, the drivers may be replaced.
8. At the finish of a day's run, washing, greasing, filling of tanks, change of tyres or sprockets may be proceeded with, but no repairs. Where possible the cars will be interned during the night.

THE TOURIST TROPHY, AND ITS VALUE TO CAR OWNERS.—PART I.

Pros, Cons, and Suggestions.

ALTHOUGH a considerable amount of interest has naturally been aroused in the minds of the entire motoring public over the international race, to be held in September, for the Tourist Trophy, yet it is obvious that no little curiosity has been excited as well, and that the majority of car owners have but the haziest idea as to how far this contest—which is to be run on entirely new lines*—will be of any real value to them. One might, perhaps, even go further, and say that the prevailing notion concerning the event results from an entire misapprehension, for we have reason to believe that a large number of motorists look upon it as being little more than a glorified fuel-consumption test, which has merely been given the semblance of a race by the ingenuity of the organisers. Since they rightly deem the cost of fuel to be a comparatively insignificant item in practice, it speaks well for the minor merits of the competition—or for the confidence that they have in the wisdom of their representative body—that those holding these ideas should take as much interest in it as they do. In view of all this, and also because it is quite possible that the Tourist Trophy will, within the next few years, prove to be the automobile race of the year, in this country at any rate, we propose—in compliance with the requests of several correspondents—to deal in a general way with this subject, to show how far the rules for this year's race will secure the desired result, and to consider the extent to which such events are likely to be of real value to purchasers of touring vehicles in the future.

Its Raison D'Etre.

To begin with, we may pass very briefly over the reasons why such a competition has been mooted at all, for not only are they all of a fairly obvious character, but they have been pointed out time after time by us and by the Press generally. Shortly stated, the automobile industry has now developed to such a pitch (1) that the limit of speed on ordinary roads has been reached (or passed) by cars that are racers pure and simple; (2) that the racing chassis of to-day is practically useless for any other purpose; but (3) that the buying public will probably always be largely guided, in the choice of a car, by the racing successes of the makers. A racing event is therefore required for *touring* cars, but the rules must be such that no dangerous speeds can be indulged in, and that (so far as possible), the winning cars will be those which would be the most serviceable to private users.

Why a "Race"?

If only because a race (in which the first man in is the winner) is an event which is understood by every Englishman, it would be highly desirable that the Tourist Trophy should be conducted on these simple lines. It will then not only appeal to the public in a way that no ordinary kind of reliability or hill-climbing trial can ever be expected to do, but it will also constitute a contest of an even more exciting spectacular

kind than does the Gordon-Bennett Race. But, apart from such relatively superficial considerations as these, there is no reason why the event should not take the form of a race, because it is quite as easy—if not more so—to make "speed" the final determining factor, as any other attribute, and the speed capabilities of a car must, in any case, be looked upon as one of the chief indications of its power, its reliability, and its efficiency. The "race" element is, indeed, most valuable, even if it is only looked upon as a means of giving every part of a car considerably more strain than it would have to withstand in ordinary use, and as imposing sufficiently severe running conditions to neutralise the superior skill of the professional drivers who handle the cars in the race.

The "Points" of a Good Car.

The words "reliability," "durability," "speediness," "flexibility," "silence," "absence of vibration," "ease of control," "comfort," "smokelessness," "efficiency," &c., have become so extremely familiar to all motorists that, although they very thoroughly sum up the most desirable characteristics of a good touring car, they have almost ceased to be as definitely expressive as they once were.

"Good Points" in Touring Car Construction.

Those which are placed at a premium in <i>any</i> race.	Those which are also put at a premium in the "Tourist Trophy."	Those which can be enforced by special rules.	Those which can only be secured by arbitrary rules permitting disqualification at discretion.
Reliability. Speediness. Ease of Control. Flexibility. Hill-climbing.	Durability. Efficiency. Absence of Vibration. Smokelessness.	Roominess of Body.	Silence. Absence of "Freak" devices.

A glance at each will, nevertheless, show how difficult it is to frame rules for any racing event in such a way as to put a premium on them all, or even to do so in such a way that a car having some obvious bad points shall not win. Fortunately, however, the majority of the good points enumerated above favour the chances—all other things being equal—of any car that is running in a race, and, even more important from the point of view of the Tourist Trophy, not only are others put at a premium, but most of the good features are rendered still more valuable to a competitor, if the rules compel him to run as economically as possible. Take, for instance, "durability" and "absence of vibration." Both may mean a possible gain of speed in any race, because less power is lost in doing useless work, but the benefits of both are rendered vastly more evident if a competitor actually makes a direct score by saving that amount of power.

Fuel-Economy, *per se*, Unimportant.

We have specially referred to the last-mentioned matter here so as to clear the ground for what follows, and in order to refute the impression that fuel-economy, as such, has had much to do with the existing Tourist Trophy rules. Primarily, as we shall show presently, fuel-consumption has been selected merely as a means whereby the speed of the cars can be limited, and,

* The Regulations, issued by the A.C.G.B.I., were given in our issue of 10th December last.

although there are very important subsidiary advantages, low-fuel cost, *per se*, is quite a minor one that could only have any material weight if it were the question of commercial vehicles that were at issue. The really important advantage of low consumption to the car owner is that it effects a far greater saving than is represented by the mere value of the fuel. We refer to the ill-effects produced by any wasted power. A brief consideration will show that there cannot be much power available for doing *harm*, if nearly all the energy that the fuel can give is turned into *useful* work, but, on the other hand, high fuel-consumption is sure to be accompanied by some detrimental effects. It may be that only a part of the fuel is consumed, and then the remainder is liberated to contaminate the air, and, incidentally, to feed the anti-motoist. It may be that some of it is used in unduly heating the cylinders or the exhaust passages, and then the valves are apt to suffer, and, indirectly, the engine is called upon to expend more power in operating and propelling the heavier cooling apparatus. Or, most serious of all, it may be that a good deal of the power developed by the engine is expended in wearing away the bearing surfaces of the transmission mechanism, and then just that fatal depreciation which is so impossible to detect in most short-duration trials is in reality taking place on the car.

The Essential Restrictions.

It is obvious from what has already been said that one of the first things that has to be decided is as to how all but *bonâ fide* touring cars can best be excluded from a competition of this kind, without at the same time introducing restrictions which might be unfair to some vehicles, and might tend to favour the chances of some specially constructed, but commercially faulty, car—or, in fact, some freak. Practically, this point resolves itself into two questions—how to limit the speed capabilities, and how to enforce touring-car requirements. By rendering it impossible for any competing car to maintain a high average speed, not only will racing cars be excluded, but the effect of the event will be to direct the chief attention of manufacturers to the perfection of a certain type of pleasure vehicle, and by so framing the rules that they enforce touring-car requirements, the further development thus induced will be of such a nature as to be directly beneficial to the motoring public.

How to Limit "Speed."

Although the two questions just mentioned are to a certain extent mutually dependent upon one another, yet it will, we think, be found to simplify matters a good deal if we confine our attention, to that of "speed" first, and briefly consider the chief different methods by which it might be restricted. Starting with the axiom that "speed" primarily depends upon the relationship of power to weight, one might almost jump to the conclusion at once that the engine power must in some way be limited, and that a minimum load or weight of car must at the same time be ensured, but, although that also is the conclusion to which we must come ultimately, there is one alternative suggestion presenting itself that should be briefly mentioned. We refer to the employment of a weight limit *only*, which may at first sight appear practicable, if the stipulation were made that a certain dead-load had to be carried. It is true that this might be made to serve the duty of keeping the speed within reasonable bounds, and that the imposition of a

dead-load would prevent spider-built machines from competing successfully, but then there is—amongst others—the fatal objection that the sole aims of manufacturers would be to sacrifice everything as far as possible to employ the largest and most powerful engines. The result would, in fact, be far from that which is desired, and therefore we are brought back once more to the consideration as to how best to limit engine-power also.

How to Limit Engine-Power.

Numerous are the proposals that have already been made for arriving at a fair computation, by means of calculations and measurements, of the power of automobile engines, and although the object has usually been somewhat different—for handicapping at hill-climbs and speed-trials or for motor boat work*—yet the possible methods are the same. In the present case, it is quite unnecessary to specify what the horse-power of the engine shall be, or even to select a system that will incidentally enable the approximate horse-power to be estimated. It is the performance of the *car* as a whole, not merely that of the engine with which we have to deal, and the only object of imposing a power-limit at all is that which has already been dealt with.

The following are the various methods that suggest themselves:—Specifying (1) the over-all cubic measurement of the engine, or (2) the total weight of the engine (with or without flywheel), or (3) the total cubic displacement of the pistons per revolution, or (4) the total cubic displacement of the pistons per minute, or (5) the rate of fuel consumption per hour, or (6) the rate of fuel consumption per mile.

Comparatively little need be said concerning the two first mentioned, for it is only too obvious that either would prove a direct incentive to the construction of freak-engines. If over-all dimensions were, for instance, to form a basis, accessibility would naturally be sacrificed in order that the cylinders could be made as large as possible, and if, on the other hand, a weight allowance were selected, then the "best" car would probably have a very fragile, and needlessly costly, engine.

Limitation of cylinder dimensions is not quite as impracticable as those just mentioned, for it certainly would leave the makers free to obtain the best results without departing radically from the best known practice, and it would, moreover, be an easily comprehended standard of size. Unfortunately, however, there are several strong reasons that militate against its adoption, these being that it places an unduly large premium on high-speed running, that it tends towards increased output at any cost, and that it involves troublesome measurements being taken by the officials who conduct the race. High speeds, although by no means *necessarily* detrimental as such, are, conversely, not essentially advantageous, so that—apart from the fact that the engine efficiency decreases at very high speeds, even though the output may still be increasing—it would be extremely inadvisable to compel makers to strive in this direction. In the same way mere high output, as such, is not so important as to warrant unqualified encouragement, for, as already pointed out, any waste of power is more or less harmful; it might well be that an engine might stand being "forced" to the utmost during the race, but that its life would in reality be a comparatively short one. The troublesome measurements to which we refer are

* On January 14th last we dealt at some length with the particular matter.

those of actually checking the cylinder dimensions stated by the competitor, for in any so important event as this it would be essential to do so. It is one thing to measure the quantity of fuel that is put into the tank, and to guard against any attempted deception, but it is quite another matter to ascertain the total piston displacement accurately, even if a means were found for doing so without actually dismantling the engine.

From another point of view, moreover, this suggested method is open to very adverse criticism. By specifying a certain piston displacement, the winning car would probably be that which was capable of taking full charges into its cylinders during each and every suction stroke, and was able to maintain the best richness of mixture (from a maximum power point of view) during the entire race. The engine would, therefore, not only be designed so that it could be "forced" at times, but the designers' further object would be to enable the driver to ensure continuous "forcing" throughout the event. To this end, the engine itself would undergo development in a very undesirable direction, and further than this, freaks in the way of change-speed mechanisms would be inevitable, since it would only be by multiplicity of "speeds" that the full available power of the engine could be utilised on all and every gradient met with.

The fourth suggested method only differs from that which we have just considered inasmuch as the substitution of piston displacement per *minute* for piston displacement per *revolution* eliminates any direct premium on high-speed running. Otherwise it is open to the same objections—though possibly to a slightly less extent. But what is perhaps more important at the moment, is that it introduces other very serious difficulties. Virtually insuperable is that of determining the engine-speed for the purposes of the race, for engine-speed is naturally a very variable quantity, and the "nominal" speeds of makers mean but little. In practice, the adoption of this means for limiting engine-power would involve the employment of some more or less complicated recording instrument on each car, say, for instance, a special revolution-counter that would automatically stop the car when the permitted piston displacement had been exceeded; even this device would need a clock mechanism to be combined with it unless "average piston-displacement per mile" were selected as the basis for the limitation of power.

Probably the point of view from which the adoption of piston displacement has appealed so forcibly to many is that it apparently goes to the root of the matter by giving an actual measure of engine capacity. Regarded in this light, and if it did so satisfactorily, it would be excellent, but unfortunately—as we have shown—this is not the case. It is just from the same standpoint, however, that the remaining methods, with which we have yet to deal, are so attractive, and it will, we think, be found that, in their case, no insuperable difficulties arise, nor is an undue premium placed on the development of any undesirable engine characteristics. We need hardly devote much time to the relative merits of the two, because the points that chiefly concern us apply with equal force to both, and because "fuel consumption per *mile*" is so obviously preferable to "fuel consumption per *hour*," when it is cars rather than mere engines that are on trial.

It is true that even this fuel-consumption basis does put a certain premium on "full-load" running, and that there is therefore an advantage to be obtained from the

employment of multiple-speed-gear mechanisms, but this is only the case in so far as economical working is concerned, and high-engine speed, as such, is actually deprecated. It is also true that this method does not necessarily ensure quite *all* the "good points" of touring car requirements—silence, convenience, and comfort, for instance—but one cannot hope to obtain everything "at one fell swoop," and we have other suggestions to make concerning them presently.

Practically what this selected method of limiting the engine-power amounts to is:—that a certain quantity of fuel is allowed for the purpose of transporting a certain weight a certain distance, and the vehicle which can perform the work in the shortest time under these conditions is the winner. Nothing could well be more in accordance with the real requirements of motorists, provided that the weight corresponds with that of their vehicles, and that the fuel allowance renders possible the desired speed. On the one hand, the fuel represents a certain amount of energy; on the other hand, a certain amount is necessary for transporting the weight the specified distance; the car which obtains from the fuel the greatest amount of mechanical energy on its driving-wheels will have the highest balance in hand, and therefore that car can afford to travel at the greatest speed. Expressed in this way, it is possible that the full advantages that would accrue to the "best" car in the race are not at first sight evident, and it is, moreover, quite likely that some of our readers have not hitherto realised the effect which speed has on the fuel-consumption of a car. It may be thought, for example, that, since the energy in the fuel sufficiently exceeds the energy required for the work in hand, the question of speed will not be of very serious moment, but that the effect of the rules will rather be to determine which competing cars can cover the whole distance, and which will run short of fuel before having done so. It may, in fact, appear as though higher speeds would only involve a comparatively small increase in fuel-consumption due to windage and to greater road-resistance, and that, therefore, any trivial delay on the road, from any cause, might hopelessly reduce the chances of success of even the best car, since the speed of all would be approximately the same. As a matter of fact, however, nothing of the kind need be anticipated, for the same determining factors that exist in any other race are still retained to the full in the Tourist Trophy, and the fuel economy of any engine is very materially affected by its own speed and by that of the car. Cars which fail to complete the course, through lack of fuel, might therefore have reached the winning post if they had been driven at a lower speed, and it is safe to say that very great differences will be found between the average speeds of those cars that do pass the post.

Another advantage that results from the choice of fuel consumption as a means of limiting power, is that the race need not be restricted to petrol cars, but is equally open to steam vehicles. This fact does, as a matter of fact, open up other questions—such, for instance, as the relative allowances of different kinds of fuel—but they do not concern us in the present article, and are, after all said and done, of minor moment. Possibly the chief drawback is the difficulty that is sure to be experienced in determining the proper amount of fuel that should be allowed on any particular occasion, to suit the actual road conditions that exist at the moment of running the race.

(To be continued.)

THE WOLSELEY VACUUM CLEANER EQUIPMENT.

Two views of a specially-constructed self-propelled machine, which has just been completed for the British Vacuum Cleaner Company by the Wolseley Company, are given in the accompanying illustrations. The propelling mechanism and the 12-h.p. engine are arranged

petrol to enable the engine to run all day continuously, if needed. An unusually large radiator is also provided, with a similar object in view, and, behind it, is a fan that draws sufficient air through it even when the vehicle is stationary; an extra water tank is also fixed beneath the engine. Above the body is a strong canopy which is well adapted for carrying the hose-pipes, amongst other things, and there is a ladder fixed to the side of the body for giving ready access to the roof. At the back is a step that affords accommodation for two men.

In order to render the exhaust gases unobjectionable when the plant is in operation outside a private house, the silencer is fixed up under the canopy, and the gases are led up through the canopy into the open air. In other respects, too, considerable forethought has been brought to bear upon small, though important, details by the designers—as, for instance, in completely encasing the entire mechanism.

This useful machine, which is geared to run at normal speeds of 5, 9, 14, and 19 miles per hour

The Wolseley Self-Propelled Vacuum Cleaner.

in much the same way as on the well-known standard Wolseley cars, but the chassis has in this case been modified considerably to render it suitable for its purpose. It has a very strong and rigid channel steel frame, and the axles are also heavier than usual, while, to ensure rigidity, the track has been increased to 4 ft. 8 ins., which is 5 ins. wider than standard. The wheel-base is 8 ft. 2 ins., the weight of the vehicle is about 3 tons, and the wheels are shod with "Sirdar" solid rubber tyres—twin tyres on the driving wheels.

The cleaner plant is fixed, as seen, at the back of the vehicle, the vacuum reservoir—above the axle—forming the rear-member of the main-frame, and the pump being driven by a "silent" chain from an additional shaft, fixed over the gear-box. This shaft is at rest except when the pump is in operation, and is brought into use by a separate hand-lever which slides a spur-wheel on it into mesh with a corresponding wheel on an extension of the first-motion-shaft of the ordinary change-speed-gear. The main-clutch then controls the pump in the same way that it controls the car, when travelling.

Included in the equipment, are six or eight lengths of hose, special tool boxes, and a sufficient storage of

Another View of the Vacuum Cleaner.

respectively, has a very smart appearance—with its red and white colouring—and undoubtedly forms an extremely compact and mobile power-plant, for which the durable petrol engines built by the Wolseley Company are eminently well suited. It forms yet another of the already numerous types of commercial vehicle made by this progressive firm.

THE BRIGHTON MOTOR MEETING.

WHATEVER the public generally may think of the advisability of motor racing at the present moment, all the inhabitants of Brighton are looking forward with great interest to the approaching speed contests, to be held

that they will not alter their ordinary tariff for the occasion. The arrangements are now practically complete, and what may be considered as the opening ceremony was inaugurated by the Brighton Hotels

Interest Association at their headquarters at the Hotel Metropole on Saturday last. The proceedings commenced with a reception by the Mayor of Brighton at 7.30. After the dinner and the usual loyal toasts, the Mayor referred to the satisfactory manner in which the negotiations between the Corporation and the A.C.G.B.I. in regard to the speed contests had been brought to a satisfactory conclusion in the most agreeable manner possible. He paid a particular tribute to the Secretary, Mr. Orde, whom he said he had found most generous in every respect, though personally he had himself been to some extent criticised for not making better terms on behalf of the Corporation.

It was pointed out by Mr. Orde, who represented the Automobile Club at the dinner, that the course has now become the finest in the world, its great length being a particularly favourable feature, as it will enable for the first time in this country a flying mile to be accomplished, while the attractions of the meeting would be greatly

BRIGHTON MOTOR RACE MEETING.—An inspection of the Madeira racing road last week by the guests of the Brighton Hotels Interest Association.

next Wednesday on the Madeira Walk, and the support which the Town Council have accorded to the undertaking has met with the most widespread recognition. £4,000 in all has been expended on tarmac-ing the Madeira Road, and this in itself will provide an interesting experiment as to the permanent value, as a method of combating dust, of this process. A fine track 1,100 yards in length, of tarmac 4 inches deep, approached by $\frac{3}{4}$ mile of good macadam, will form the speed track. There has been a good deal of fear amongst the public generally, who contemplate visiting the town to be present at the competition, that the hotels will generally raise their prices to a prohibitive figure. It is therefore satisfactory to learn that the Brighton Hotels Interest Association, which includes the Hotel Metropole, the Grand Hotel, the Old Ship, and practically all the principal hotels in the town, have unanimously decided

enhanced by the promised presence of Lancia, who, until the unfortunate accident to his car—the breaking of the radiator by a flying stone—had the best of chances for winning the Gordon-Bennett Race.

The Chief Constable's observations deserve attention, as he recognised that motoring was a permanent institution and should be treated as such. The rarity of summonses and fines in Brighton, he explained, was due to his method of conveying quietly a warning to offending motorists, and he found as a rule the trouble was but seldom repeated.

The assembled guests were subsequently taken to view the racing track on the Madeira Road, followed by a short run round the town, the party being distributed among sixteen cars. A run was also made to Seaford and back in the morning, and in the afternoon to the Devil's Dyke.



Northampton Institute Engineering Courses.—At the entrance examination for the day courses in engineering to be held next September, the Governing Body of the Institute has decided to offer three scholarships for open competition. These scholarships will give exemption from fees, amounting to £52, during the whole of the four years' course in mechanical or electrical engineering.

GENERAL BOOTH has been so satisfied with the results of his motor car tour last year that he has arranged to again employ the automobile in the conversion tour which he is arranging for the present summer. He will commence the tour on his arrival at Folkestone on August 1st, and the tour it is anticipated will be considerably more extended this year than last embracing in all some 2,000 miles.

RACES, RECORDS, AND TRIALS.

Ab-Kettleby Hill-Climb, May 27th—The formal results of the competition which took place on this hill on May 27th last under the auspices of the Leicester A.C. have just been issued, the Du Pre Cup, which was offered for the event, being secured under the handicap formula by Mr. G. F. Reading with his 10-h.p. Wolseley car. The distance was over 1 kilometre, in which the rise is 265.42 feet, the cars starting from rest. The results would prove of considerably more interest if the formula under which the places have been worked out had been also published.

KETTLEBY HILL CLIMB RESULTS, MAY 27th.

DU PRE CHALLENGE CUP.

Order.	Owner, Car, H.P., and Passengers.	Weight.	Cylinders, Bore, and Stroke.	Marks.
		cwt. ins or mm.		
1	G. F. Reading, 10-h.p. Wolseley (4) ...	26 2	4½ × 5	251.5
2	E. D. Wells, 12-h.p. Daimler (4) ...	29½ 4	4½ × 4½	234.57
3	A. R. Attrey, 14-h.p. Minerva (4) ...	22½ 4	90 × 115	231.95
4	J. A. Doran, 15-h.p. Darracq (4) ...	25½ 4	90 × 120	223.45
5	Miss Starkey, 10-h.p. Renault (4) ...	24 2	100 × 120	213.45
6	H. Marshall, 18-h.p. Mercedes (4) ...	30½ 4	100 × 130	212.7
7	F. Hardy, 14-h.p. Minerva (4) ...	22½ 4	90 × 115	212.4
8	R. G. Hogarth, 12 h.p. Peugeot (4) ...	25 2	100 × 100	209.5
9	R. B. Muir, 14-h.p. Renault (4) ...	29½ 4	90 × 120	209
10	E. G. Mawboy, 15-h.p. Darracq (4) ...	26½ 4	90 × 120	207.45
11	J. C. Wilson, 28-h.p. Daimler (4) ...	31 4	110 × 150	204.65
12	F. Bolton, 30-h.p. Daimler (4) ...	32½ 4	124 × 150	204.3
13	R. Cripps, 12-h.p. Argyll (4) ...	24½ 2	88 × 140	201.9
14	E. H. Arnott, 14-h.p. Minerva (2) ...	19 4	90 × 115	201.05
15	H. Birdcumshaw, 12 h.p. Argyll (4) ...	22½ 2	88 × 140	200.45
16	C. H. Leech, 22-h.p. Daimler (4) ...	29 4	95 × 128	198.7
17	C. J. Allin, 10-h.p. Humber (4) ...	21½ 4	3 × 3½	198.5
18	B. C. Fowkes, 12-h.p. Napier (4) ...	23½ 4	3½ × 4	196.8
19	T. C. Pullinger, 20-h.p. Humber (4) ...	25½ 4	95 × 125	195.65
20	H. A. Hamshaw, 15-h.p. C.G.Y. (4) ...	26½ 4	95 × 130	194.75
21	R. R. Latham, 12-h.p. Progress (4) ...	21½ 2	4 × 5½	194.5
22	F. H. Gerard, 8-h.p. De Dion (4) ...	18½ 1	100 × 120	194.1
23	Hon. L. Lowther, 20-h.p. Argyll (4) ...	27½ 4	88 × 130	193.45
24	W. D. Foster, 12-h.p. Argyll (4) ...	23½ 2	88 × 140	189.8
25	G. H. Wait, 12-h.p. Clyde (4) ...	18½ 2	88 × 140	188.2
26	L. A. Thominet, 10-h.p. G. Richard (4) ...	18½ 2	100 × 100	184
27	L. Pierpoint, 9-h.p. De Dion (4) ...	18½ 1	100 × 120	183.2
28	R. Evans, 7-h.p. Oldsmobile (2) ...	14 1	5 × 6	181.55
29	B. Granger, 12-h.p. Gladiator (4) ...	23½ 2	105 × 130	175.7
30	A. F. Houffon, 12-h.p. Sunbeam (4) ...	23½ 4	80 × 120	172.55
31	H. E. Barrow, 10-h.p. Peugeot (4½) ...	22½ 2	105 × 105	170.5
32	H. S. Chaplin, 12-h.p. Binks (2) ...	14½ 4	3½ × 3½	166
33	J. M. Bennett, 12-h.p. Darracq (4) ...	21½ 2	100 × 120	158.4
34	E. H. Jeule, 12-h.p. Binks (2) ...	14½ 4	3 × 3½	154.25

Ab-Kettleby Hill-Climb, July 8th.—Entries for this event were confined to members of the Nottingham A.C. on Saturday last, when 28 cars took part in the two competitions, four high-powered Daimlers being entered in the speed contest as well as the handicap. There were some new cars trying their mettle at this hill, and some good ascents were made.

The mile course was used this time, and there was a total rise of about 280 feet. Only one car failed on the hill, and that through a choked carburettor. The speed class was very interesting, the 40-h.p. Daimler beating the best times on this hill of a year ago.

In the speed class the placings were:—Mr. C. Hardy, 40-h.p. Daimler, first; Mr. J. Crosshaw Wilson, 28-h.p. Daimler, second; Mr. F. A. Bolton, 35-40 Daimler, third; and Mr. E. Prestwich, 35-40 Daimler, fourth.

In the club handicap the times were not given, but

the following are the cars placed in order of time. The handicap is to be decided by the Nottingham A.C. Committee:—

	h.p.		h.p.
C. Hardy ...	40 Daimler	P. Huskinson ...	— Simms
T. C. Pullinger ...	16-20 Humber	A. R. Atkey ...	14 Minerva
J. C. Wilson ...	28 Daimler	R. R. Latham ...	12-18 Progress
W. M. Hutchin-son	28-36 Daimler	A. Barlow ...	12-14 Clement-Talbot
W. Blamires ...	24-30 Richard-Brasier	G. P. Mills ...	10 Raleigh
F. A. Bolton ...	35-40 Daimler	H. Bowden ...	15 Darracq
E. P. Prestwich ...	35-40 Daimler	J. Sewell ...	— Progress
C. P. Maltby ...	16-20 Richard-Brasier	H. Belcher ...	12-14 Clement
H. Belcher ...	12-16 Clement-Talbot	J. P. A. Long ...	12-16 Richard-Brasier
R. M. Wright ..	8-10 Humber	I. T. Overton ...	10 Unic
E. W. Lewis ...	8 Rover	R. G. Hogarth ...	12 Peugeot
J. C. Spencer ...	16-20 Argyll	— Bircumshaw	10-12 Argyll
		H. B. Gast ...	10 R. Brasier
		S. Harvey ...	14 Renault

Ightham Hill-Climb.—A hill-climb, limited to members of the Blackheath A.C. took place on Saturday last, the 8th inst., at Moat Hill, Ightham. The cars were handicapped according to bore of engine, and weight of car with passengers, upon the basis of the formula used by the Midland A.C. at their hill-climb in June. The place, according to formula, and speed of the best six cars up the hill (about one-third of a mile), giving an average gradient of about 1 in ten, was as follows:—

1st ...	T. Marshall ...	De Dion ...	12.3 miles per hour.
2nd ...	E. H. Fraser ...	De Dion ...	9.3
3rd ...	S. T. Norfolk ...	Comet ...	10.5
4th ...	W. Whiteway ...	Regal ...	14.4
5th ...	S. D. Graves ...	Darracq ...	15.3
6th ...	E. W. Stabb-Johnson	Star ...	11.4

South Wales Hill-Climb.—A hill-climbing competition, organised by the South Wales A.C., took place at the Buttrills, Barry, last Saturday, when thirty-seven cars took part. The hill rises for about 500 yards with a gradient from 1 in 9 to 1 in 11. The following were the results:—Amateur drivers—1, G. S. Seccombe's 12-h.p. Wolseley; 2, F. C. Shackell's 10-h.p. Gladiator; 3, C. H. Bailey's 28 to 36-h.p. Daimler. Professional drivers—1, G. S. Seccombe's 12-h.p. Wolseley; 2, C. E. Evans's 12-h.p. De Dion; 3, Gibbon Brooke's 6-h.p. Wolseley. Open event—1, G. S. Seccombe's 12-h.p. Wolseley; 2, Gibbon Brooke's 8 to 10-h.p. Humber; 3, Parker Thomas's 10-h.p. Talbot. The Bailey Trophy for the most meritorious performance was won by G. S. Seccombe.

Vanderbilt Cup Course.—The change proposed in the course for this race in October will reduce the "circuit" to 22 miles, which will necessitate 14 laps to make up the minimum distance of 300 miles under the rules. The new route, although more hilly than the old one, however, would ensure a non-stop race, as no controls would be necessary. The sanction of the Long Island authorities has been given for the race on October 11th, but the choice of the circuit is not yet decided, but the proposed changes are, starting from New Hyde Park, the first part is along the Jericho Turnpike (7 miles), over which last year's race was started and finished; then turning north, instead of south, as last year, to East Norwich (5 miles); thence to the left along the North Turnpike to Bull's Head Hotel (5 miles), at which point, turning

again to the left, down south past the Vanderbilt, Jr., estate, again reaching New Hyde Park (5 miles). The roads are sinuous and narrow for about 8 miles, whilst about 14 miles will allow good speeds to be developed.

Ostend Motor Week.—In fine weather the programme of this fixture was opened on Monday, when the event of the day was the Flying Kilometre for Racers and Tourist cars. In the former Rigolly, on his Gobron, came out at the top with 21 $\frac{3}{4}$ s., and in the Tourist Class, Baron Jochem's 60-h.p. Mercedes was first in 37s. No new records were established, except in the bicycle class. In this class Cissac, on a Peugeot machine (50 kilogs.), was timed for 28 $\frac{1}{8}$ secs. (= 127.65 k.p.h.), and Guipponi, on a similar machine, for 28 $\frac{3}{8}$ secs., both these therefore beating the world's record made by Lanfranchi at Dourdan, also on a Peugeot machine, of 29 $\frac{1}{8}$ secs. The chief times accomplished were:—

Racers.

- Heavy Cars.*—1. Rigolly (Gobron), 21 $\frac{3}{4}$ secs. (= 166.66 k.p.h.); 2. Wagner (Darracq), 23 $\frac{1}{4}$ secs. (= 155.72 k.p.h.).
Light Cars.—1. Touloubre (Darracq), 29 $\frac{3}{8}$ secs. (122.4 k.p.h.); 2. Renonce (Gregoire), 40 $\frac{1}{8}$ secs. (88.67 k.p.h.); 3. Civelli (Gregoire), 47 secs. (76.6 k.p.h.).
Motor Bicycles under 50 kilogs.—1. Cissac (Peugeot), 28 $\frac{1}{8}$ secs.; 2. Guipponi (Peugeot), 28 $\frac{3}{8}$ secs.; 3. Max (Minerva), 40 secs.
Motor Cycles over 50 kilogs.—1. Guipponi (Peugeot), 29 $\frac{3}{8}$ secs.; 2. Pilette (De Dion trike), 43 $\frac{1}{8}$ secs.

Tourist Cars.

- Cat. 1. Chassis under 5,000 francs.—1. 7-h.p. Oldsmobile, 1 min. 32 $\frac{1}{4}$ secs.
 Cat. 2. Chassis under 8,000 francs.—1. 12-h.p. Unic, 1 min. 19 $\frac{1}{8}$ secs.
 Cat. 3. Chassis under 9,000 francs.—1. 24-h.p. Vivinus, 58 secs.
 Cat. 4. Chassis under 12,000 francs.—1. Gardner-Serpollet, 43 $\frac{1}{8}$ secs.; 2. 18-h.p. Darracq, 52 $\frac{1}{8}$ secs.; 3. 18-h.p. Darracq, 56 secs.
 Cat. 5. Chassis under 15,000 francs.—1. 24-h.p. Germain, 51 $\frac{1}{8}$ secs.; 2. 24-h.p. Radia, 54 $\frac{1}{8}$ secs.; 3. 24-h.p. Radia, 56 secs.



Mechanical versus Horse-drawn Traffic.—So much has been said about the rights of the owners of horse-drawn vehicles upon our roads that Mr. S. F. Edge has had a census taken of all the vehicles passing along the Bath Road through Hounslow from 9 o'clock in the morning till 9 o'clock at night on July 2nd last. Here is the result:—

Cycles ...	...	...	4,577
Motor vehicles ...	...	...	557
Electric trams...	...	...	407
Horse vehicles ...	...	...	209
			<hr/> 5,750 <hr/>

These figures are a very interesting and complete refutation of the impertinent assumption of the owners of hippomobiles that they have superior rights to our highways. Here, out of 5,750 vehicles passing in 12 hours, there were only 209 horse-drawn conveyances. Comment is needless.

Hiring Out Cars.—It is doubtless only a matter of common law, but the case of Mr. J. Hextall and a London motor car firm has a certain amount of importance in connection with automobilism, owing to the increasing amount of business done in hiring out cars for short periods. Mr. Hextall had engaged a car to take him and a party of friends out for the day. He

- Cat. 6. Chassis under 17,000 francs.—1. Two Rochet-Schneider cars, dead heat, 40 $\frac{1}{8}$ secs.; 3. Rochet-Schneider, 44 $\frac{1}{8}$ secs.
 Cat. 7. Chassis under 20,000 francs.—1. Germain, 44 $\frac{1}{8}$ secs.; 2. Radia, 46 secs.; 3. 40-h.p. Brouhot, 47 $\frac{1}{8}$ secs.
 Cat. 8. Chassis under 30,000 francs.—1. Darracq, 41 $\frac{1}{8}$ secs.
 Cat. 9. Chassis over 30,000 francs.—1. 60-h.p. Mercedes, 37 secs.

On Tuesday the 10-kilom. event for racing cars and 5-kiloms. for tourist cars took place, the categories being the same as on the first day.

On this day several records fell. Wagner, with his French Eliminating Darracq racer, covered the 10 kilometres, standing start, in 4m. 8s., beating Rigolly's previous record on a Gobron of 4m. 39s. Baron Jochems, in the tourist class, with his 60-h.p. Mercedes, lowered De Cater's time over the 5 kilometres by $\frac{2}{8}$ s., and Guipponi, in the motor bicycles, put up 5m. 9 $\frac{3}{8}$ s. for the 10 kilometres. The chief times were:—

Racers, 10 kiloms. Standing Start.

- Heavy Cars.*—1. Wagner (Darracq), 4 min 8 secs. 2. Rigolly (Gobron), 6 mins. 32 secs.
Light Cars.—1. Touloubre (Darracq), 5 mins. 18 $\frac{1}{8}$ secs. 2. Civelli (Gregoire), 6 min. 8 secs.
Motor Bicycles under 50 kilogs.—1. Guipponi (Peugeot), 5 min. 9 $\frac{3}{8}$ secs.

Tourist Vehicles, 5 kiloms.

- Cat. 1. 1. 7-h.p. Oldsmobile, 6 mins. 34 secs.
 Cat. 2. 1. 12-h.p. Unic, 5 min. 37 $\frac{1}{8}$ secs.
 Cat. 3. 1. Darracq, 4 min. 6 $\frac{1}{8}$ secs. 2. Vivinus, 4 min. 19 $\frac{3}{8}$ secs.
 Cat. 4. 1. Fiat, 3 min. 51 secs. 2. Darracq, 4 min. 11 $\frac{1}{8}$ secs.
 Cat. 5. 1. Germain, 3 min. 50 $\frac{1}{8}$ secs. 2. La Buire, 4 min. 6 $\frac{1}{8}$ secs. 3. N.A.G., 4 min. 10 $\frac{1}{8}$ secs.
 Cat. 6. 1. Rochet-Schneider, 3 min. 17 $\frac{1}{8}$ secs. 2. Rochet-Schneider, 3 min. 25 secs.
 Cat. 7. 1. Brouhot, 3 mins. 25 secs.; 2. Germain, 3 mins. 29 $\frac{1}{8}$ secs.
 Cat. 9. 1. 60-h.p. Mercedes, 2 mins. 52 $\frac{1}{8}$ secs.

On Wednesday, the Tourist Trial over 240 kilometres, starting from Ostend, was the programme, and on Thursday, the standing mile on the Snaeskerke Road.



paid two guineas deposit on it, and it was agreed the car should arrive at 9 a.m. The car did not turn up till 11 o'clock, so Mr. Hextall sent it back again, and sued the company for the return of his deposit and damages, both of which he obtained, the latter to the amount of £2. The defence set up was that the car did not belong to the defendant company, but to a private owner, who had garaged it with them, and that the order was taken by a man who was in no way connected with the company.

Vulcanisers for Tyres.—The difficulties of effecting satisfactory repairs to tyres are, as every motorist will admit, exceedingly great, and, when it is necessary to send away the tyre for repair, very annoying as well. We have already had occasion to draw attention to a device by which it is possible to effect most repairs in the garage, and the same firm (Harvey, Frost and Co.) who introduced this vulcanising apparatus last year have now brought out a smaller *portable* plant designed so that it may be carried on a car. This "Car" vulcaniser—as it is styled—measures 9 in. by 6 in. by 6 in., and weighs less than 20 lbs., so that it cannot be considered an exceedingly bulky object even in the limited space at disposal on most motor cars. Messrs. Harvey, Frost and Co. claim that an inner tube can be effectively repaired in less time than is required by ordinary means, and that it is possible with their device to successfully deal with bursts which could not be patched at all.

CLUBS AND ASSOCIATIONS.

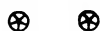
HEREFORDSHIRE AUTOMOBILE CLUB.—Meet of the members at the Moor, Hay, last week, upon the invitation of Mr. H. Graystone, after which the run was continued to Brecon and back.

Automobile Association.—The first general meeting of this newly-formed Association was held at the Trocadero on Monday evening last, when Mr. Charles Temperly again presided. A committee was appointed, which included Mr. Charles Temperly, Sir Archibald Macdonald, Lieut.-Col. Mark Mayhew, Messrs. Charles Jarrott, S. F. Edge, and Colonel Bosworth. Various matters of constitution and trade representation were discussed, and upon the motion of Sir Archibald Macdonald a vote of thanks was passed to Mr. Cowley Lambert for the course he publicly adopted in condemning from the Guildford Bench the biased judgments and unjust sentences which are so frequently passed upon motorists by magistrates throughout the country.

The Secretary of the new Association is Mr. E. A. Bowen, of 45, Great Marlborough Street, W.

Ladies' Automobile Club.—One of the best attended of the club meets this year was, perhaps, that at Lady Beatrice Rawson's beautiful country place, Woodhurst, near Crawley, when Lady Beatrice personally received her guests. The members of the East Surrey A.C. had been invited by Captain Rawson for the same day as the members of the club of which Lady Beatrice is a vice-president, and altogether some ninety motorists and their friends accepted the invitation.

Lincolnshire A.C.—Dr. Gilpin's annual picnic to the members of the Lincolnshire A.C. took place last Saturday in Grimsthorpe Park by the courtesy of Lord Ancaster, the Red Deer Park being selected for the occasion. In order to make the gathering one of more than passing interest, some excellent competitions were provided. About twenty cars carrying about one hundred guests attended, and the competitions which took place, after a very enjoyable *al fresco* tea, were attended by a considerable number of onlookers. The speed-guessing events created considerable amusement. In the spectators' competition, Mr. W. S. Foster, of Lincoln, proved the winner, the Rev. M. C. Wilkins, of Croft, being second best. The motorists subsequently were also tested for guessing speed on their own cars over a measured mile. In this the winner was Mr. H. Marshall, of Gainsborough, and Mr. C. W. Pennell, of Lincoln, second. A speed match over a mile distance was subsequently arranged between Mr. H. Newsam, of Lincoln, and Mr. W. Younger, M.P.'s 6-cylinder Napier, the times respectively being, for the Daimler, 1m. 39½s., Napier, 1m. 50s.



WHAT one motor can mar, another can sometimes mend. At any rate this was the case with the mails which on last Saturday evening were being conveyed from Brecon to Abergavenny. The motor omnibus broke down, and the officials were just wondering what they would do with the mails, when Captain Morgan, of Pontwell Hall, drove up on a powerful Daimler motor

Manx A.C.—Tynwald Day was selected for the second run of the season to Kirby by members of this club. A goodly company assembled upon the occasion, including the president, Mr. G. Drinkwater, with his family, in his White steam car; Dr. Sugden, of Ramsay, on a Wolseley; Mr. J. Daly (Darracq); Dr. Teare, of Castletown (Wolseley); Mr. T. Moore, Billown (Argyll); Mr. Leigh, Port St. Mary (Horbick); Mr. Mylchrees, of the Yorkshire A.C. (Lanchester), who was accompanied by the hon. secretary of the club; Mr. and Mrs. Caparu, Port St. Mary (Riley tri-car); and Mrs. A. E. Hunt (Lanchester).

Motor Union Meet at Chester.—To-day, Saturday, the Motor Union is holding the third and last of its this year's inter-club meets by the invitation of the Duke of Westminster at Eaton Hall, the meet being followed by a Motor Union dinner at the Grosvenor Hotel, Chester. Eaton Hall, the celebrated Cheshire seat of the Westminster family, is, as a general rule, rigidly closed to automobiles, so that the present opportunity afforded to the members of the Union should be specially appreciated. The meet at Eaton Hall is arranged for 3.30 in the afternoon, and it must be understood that no cars will be admitted without the production of a pass, which members can obtain at the Grosvenor Hotel, Chester. They are then to leave Chester by the Dee Bridge, and pass through the village of Handbridge to the Eccleston Gate of Eaton Park. Afternoon tea will be partaken of at the Iron Bridge near the Hall at 4.30, after which the members will return to the Grosvenor Hotel, Chester, for the dinner at 7.30, at which the Hon. Arthur Stanley, M.P., Chairman of the Union, will preside. The meeting should prove especially interesting to all who attend, as in addition to the attractions of Eaton Hall, Chester is the most picturesque and quaint old town in the United Kingdom. It is, as many people will remember, still enclosed by the old mediæval wall, and is full of houses of the black and white Cheshire type, often beautifully carved, dating from the 15th and 16th centuries, among which "God's Providence House" is perhaps the most noted. In Charles the First's time it was triumphantly held for the crown for a long period by the Byron of that day. It may be of interest to any members that intend to proceed to Chester by railway to know that week-end tickets are not issued by the L. & N.W. Railway to the town itself, but they can be obtained to Rhyl, which is but a little further down the line.

car with a party of officers on board. He at once undertook to take the mails on, and collect the mails and passengers *en route* to Abergavenny railway station. Although Captain Morgan started twenty minutes behind time, he accomplished the journey successfully, and arrived at the station twenty minutes before the schedule time.

MOTOR CYCLING.

Motor Union of Ireland Hill-Climb.—The Dublin centre of the Motor Cycle Union held the first hill-climb of the season on Saturday last. The event was decided at Glendhu, co. Dublin, over the course usually selected by the Irish Automobile Club for their annual contest, the distance being increased from $\frac{1}{4}$ of a mile to $1\frac{1}{2}$ miles. The event was confined to members, but open to any type, make, or class of motor cycle, irrespective of weight or horsepower. Two sets of prizes were awarded, one on the time and the other on a handicap; the former was won by A. Summers, who

MOTOR BOATING.

Motor Boat Fixtures.—The racing programme for the 1905 season, which has been arranged at the conference between the Motor Yacht Club and the British Motor Boat Club, promises some excellent sport during the next two months. These will embrace meetings as follows, entries in each case closing three days before the actual race meeting :—

July 25-26.—Races at Plymouth (M.Y.C.).
 „ 26.—Garden Party and Motor Boat Gymkhana (B.M.B.C.).
 August 1.—Sea View Races (M.Y.C.).
 „ 2-3.—Southampton Motor Races (M.Y.C.).
 „ 7.—Races in the Solent (B.M.B.C.).
 „ 8.— „ „ „ (M.Y.C.).
 „ 9.—Southampton Water (B.M.B.C.).
 „ 10.—Cowes (B.M.B.C.).
 „ 11-12.—Solent (M.Y.C.).
 „ 15-16.—Ryde (B.M.B.C.).
 Sept. 20.—Burnham-on-Crouch (B.M.B.C.).

A SUCCESSFUL trial run has been made by the Pioneer, a new motor fishing boat which has been acquired by the Congested Districts Board of Scotland, and is also controlled by the Scotch Fishery Board. She has run round from the Fife coast to the Custom House below London Bridge, and completed her experimental trips by a run down the river. The motor boat was fitted with the Dan type of motor, which consumes ordinary paraffin oil, and enables the boat to develop the speed of three knots an hour in perfectly calm weather, when the sails do not draw at all.

At the Maidenhead Regatta a regulation was promulgated that no petrol or motor spirits should be poured from one receptacle to another on the river, and that every motor boat should be provided with a quantity of dry sand for extinguishing petrol flames.



It has been announced by the Prime Minister that the inquiry to be held into the working of the Motor Car Act is to take the form of a Royal Commission.

MOTOR CYCLE UNION OF IRELAND.—A snap at the Hill-Climb on Saturday last. A real test hill. Alf. Summers on 3-h.p. Triumph (winner of Class I. and second in Class II.).

covered the course on a 3-h.p. Triumph in 3m. 22s.; C. B. Franklin being second, and L. D. Horty, on a 4-cylinder F.N., being third. The handicap worked out in favour of Franklin; Summers second, and Hewison third. The following are the times taken by Messrs. T. W. Murphy and Colman O'Connell :—

			m.	s.
1.	A. Summers	3-h.p. Triumph	3	22
2.	C. B. Franklin	2 $\frac{1}{2}$ -h.p. F.N.	3	23 $\frac{1}{2}$
3.	L. D. Horty	4-cylinder F.N.	3	54 $\frac{1}{2}$
4.	L. Summers	3-h.p. Triumph	3	57 $\frac{1}{2}$
5.	H. E. Alfred	3-h.p. Singer	4	25 $\frac{1}{2}$
6.	T. T. Hewison	2 $\frac{1}{2}$ -h.p. F.N.	4	39
7.	P. S. Sheardown	3-h.p. N.S.U.	4	51 $\frac{1}{2}$
8.	W. Guilfoyle	2 $\frac{1}{2}$ -h.p. Liberty	5	7 $\frac{1}{2}$
	A. E. Bannister	2-h.p. Minerva		(retired).



DURING the Brighton Race Week the Michelin Tyre Company, Limited, have arranged with their agents, the Brighton and Sussex Motor and Carriage Works, Limited, 29, King's Road, and 13A, Cannon Place, Brighton, to have a large stock of Michelin tyres and accessories on hand, so that motorists will be able to obtain any spares they may require.

THE growing importance of the home industry and the value of the business to be done by an enterprising and capable firm is attested by the recent progress of which the Argyll Motors, Limited, of Glasgow, send us some particulars. During the last quarter, ending with the midsummer quarter-day, the firm manufactured and delivered 220 cars. This output represents some £80,000 and 3,000-h.p. On the last day of June, a special train carrying nothing but Argyll cars was chartered to convey their output to Carlisle. The Company have laid down new works, which will be rapidly completed, and these, which will be fitted with every modern convenience, will cover some 11 acres of floor space. The principal building is an imposing structure, some 550 feet long and two storeys high, built of red Dumfriesshire sandstone with a Peterhead granite basement and entrance hall. This building contains a large hall capable of accommodating 500 people, which will be used for meetings of the employees. A lecture room, ambulance rooms, and refreshment rooms for the staff and different departments are provided. When the new works are in full swing, the Company anticipate turning out upwards of 2,000 cars per annum.

H.M. King Edward's latest acquisition—a 40-h.p. Mercedes Car. The carriage which has just been completed by Messrs. Hooper, the well-known carriage builders, is perfectly fitted throughout. The wheel base is 10½ feet, a table is placed in the spacious body, electric light is fitted, and every convenience that can lend comfort in long-distance travelling is embodied in the finished car.

NOTHING which has recently occurred in connection with the automobile movement can be considered to be of greater importance than the proposed Royal Commission into the working of the Motor Car Act. It is most important that the case of motorists should be placed before the Commission as strongly as possible, and all car owners or others who have either been themselves the victims of flagrant injustice, police persecution, magisterial incompetence or prejudice, or hostility on the part of the general public, should, in the interests of the movement, communicate such facts as they can support by evidence, either to the Automobile Club or to the Motor Union. The Automobile Club, of course, will be recognised as the official spokesman of motorists throughout the United Kingdom, and any useful suggestions for the amelioration of the Act that may occur to anyone should be communicated to the Legislative Committee of that body.

The Results of Local Dilatoriness.—The Chertsey District Council are still at work on the bridge over the Wey at Byfleet. The work, which might have been done, according to expert estimates, in a fortnight, has been in progress for upwards of six weeks, and shows little signs of approaching completion. In the meantime, all the traffic has to go through the river in what is called a "water splash" (at its own risk, the Council is particularly careful to point out). The above photograph shows a Wolseley car in the act of crossing the Wey at this point, an experience more suggestive of South Africa, it must be admitted, than of "Christian" England.

THE Colonists of South Africa are looking forward to the general introduction of the alcohol motor with much interest, as it is anticipated that the demand for colonial alcohol which would result would have a very beneficial influence on the agriculture of the Colonies.

SCARBOROUGH church parade on the Esplanade is a feature of this highly-popular seaside resort. Strangely, an agitation has sprung up to exclude motor cars from this function, a few rabid anti-motorists alleging that the attractiveness of the parade is destroyed by the presence of automobiles.

Crossing the Wey at Byfleet.

The recent Scottish Reliability Trials have been the means of a large number of orders being placed for cars which did well in this trying ordeal. The photograph which we give above is of a 20-h.p. Ariel, a sister of the one which gained the Gold Medal in these Trials. This has been specially built to the order of Mr. C. Russell Gray, of Monmouth, and adds one more to the beautiful British cars which are so rapidly getting on the road throughout the whole country.

MEMBERS of the Huddersfield A.C. on Saturday took 54 patients of Huddersfield Infirmary, in charge of Dr. Horsfall, the matron, and 20 nurses, in 27 motor cars, to the Moors, where tea was provided.

MR. CATHCART WASON has been writing to the papers in support of his proposal to impound cars in the case of offences against the law, committed by their drivers. But we cannot say that he makes out much of a case. He does not attempt to meet the injustice that would arise when an offence is committed by a driver whose employer is not on the car with him.

A VERY serious accident occurred last week to a car belonging to Baron Henri de Rothschild on the Auvergne course. The Baron had established a regular medical encampment just off the circuit road, and the car was being taken back by two of his chauffeurs. Careering down a long stretch of road with a bad corner at the bottom at some 50 miles an hour or more, they attempted to take the corner, but suddenly the car skidded, colliding with a stone parapet, and was literally smashed to bits. A female occupant of the car was thrown with her head against a wall and killed instantly. The driver was hurled against a barrel of anti-dust mixture with such force that his head penetrated the timber and received a dressing of that material, and he died some hours later. The other two occupants of the car are dangerously, but, it is hoped, not fatally injured. The accident, which was witnessed curiously enough by both Baron de Caters and Jenatzy, is a shocking

example of the kind of thing that sometimes happens when irresponsible professional drivers are permitted to gallivant about on a car without any supervision.

MR. WHARTON, M.P., who was one of the principal speakers at the Harrogate Habitation of the Primrose League, in the course of a long speech said that he never encountered such unanimity as now prevailed to restrain the ardour of those motorists who seemed to him to live to break the law. He again put forward his proposals that great increase of duty should be made in the case of high-powered cars. Up to 12-h.p. Mr. Wharton would be graciously pleased to allow them to pay the same contribution as they now make to the revenue, but over 12-h.p. he would inflict a duty of £1 per h.p. per annum. We are all in accord with Mr. Wharton that something must be done to stop the road hooligan, though even he can hardly be said, we think, to live only to break the law.

ANOTHER case has been dismissed by a magistrate, this time at Stockport, owing to the crude methods of timing adopted by the police. So it is interesting to note that someone has found out, or re-discovered, the fact that the old-fashioned egg-boiler—the three minutes sand-glass—works beautifully on a motor car, and is more accurate than most police stop-watches. All you have to do is to carry one of these time-honoured inventions with you and keep your eye on the milestones. Start your egg-boiler when you see a milestone, and if you do not pass a second milestone before the sands are run out, you know you are not exceeding the legal limit. If there are no milestones you will probably write subsequently to the inventor, so we do not give his name.

Built specially for use in India, the 25-seated char-a-banc shown above has recently been completed by Messrs. J. W. Brooke and Co., for shipment to Bombay. It has a four-cylinder engine of 15-20-h.p. a four-speed change-gear of the sliding spur-wheel pattern, and is of the chain-driven type. Solid rubber tyres of the well-known Sirdar make are fitted, those on the back wheels being of the twin type. The teak body has a strong canopy to carry luggage, curtains to protect the passengers from the weather, and a glass screen in front. This useful car is geared to run at any speed up to 20 m.p.h., and has, we learn, proved easily capable of taking 30 people up a gradient of 1 in 8.

PUBLICATIONS RECEIVED.

Malvern.—The official publication of the Ratepayers' Association. Edited by George W. May. London: The Health Resorts Association, 2, Gray's Inn Road, W.C.

Rhyl.—The official publication of the District Council. Edited by George W. May. London: The Health Resorts Association.

Southend and Westcliffe-on-Sea.—The official publication of the Corporation. Edited by George W. May. London: The Health Resorts Association.

Bexhill.—The official publication of the Corporation. Edited by George W. May. London: The Health Resorts Association.

Guide-Routier Continental. 1905. London: The Continental Tyre and Rubber Company (Great Britain), Limited, 104, Clerkenwell Road.

Ellan Vannin. Ballads and Verses of the Isle of Man. By Harrold Johnson. London: Watts and Co. Douglas: Broadbent and Co. 1s. net.

Handy Newspaper List. 1905. London: Chas. and Edwin Layton. Price 6d.

Catalogues.

On Motor Cars and their Purchase.—Straker and MacConnell, Ltd., 27a, Old Bond Street, W.

Raincoats, Waterproofs and Motor Clothing. 1905-1906.—Dunlop Rubber Co., Ltd., Aston, Birmingham.

Lubricating Oil for Petrol Engines.—Every motorist knows, or soon finds out, how important it is to get a suitable oil for his engine, and it is not altogether surprising that such a firm as De Dion Bouton, Limited, should have placed a new brand of oil upon the market under their own name. That the oil they are now able to supply should have only been evolved as the result of most extensive tests will, of course, be taken for granted by all who know the thoroughness which is characteristic of the firm. In an interesting pamphlet which they have drawn up on the subject of these tests, it is pointed out that none of the ordinary oils formed by a mixture of American and Russian products had, when tested, a sufficiently high flash-point to render them satisfactory, and that pure American oil, therefore, formed the basis of all further investigation. During one series of tests extending over half an hour, it was found that the 12-h.p. engine developed $3\frac{1}{2}$ electrical h.p., more, when lubricated with the De Dion oil, than could be obtained from it when using the next best oil on the market.

British Exports and Imports of Motor Cars, &c., for 1905.

NOTE.—For 1904 comparative figures see full table for the year in our issue for January 21st, page 91.

Imports.

1905.	No. of Cars and Value.		Parts Value.	No. of Motor Cycles and Value.		Parts Value.
		£	£		£	£
January ...	362	149,578	36,608	57	1,842	905
February ...	431	195,978	56,773	102	3,748	1,957
March ...	560	239,091	75,403	152	5,369	2,721
April ...	544	225,012	68,891	192	6,477	2,087
May ...	728	327,008	77,801	280	8,274	2,947
June ...	557	259,359	53,362	211	6,581	2,201
Total ...	3,182	1,396,026	368,898	994	32,291	12,818

1905.	Exports, British and Irish make.						Foreign and Colonial Re-exportation.					
	No. of Cars and Value.		Parts Value.	No. of Motor Cycles and Value.		Parts Value.	No. of Cars and Value.		Parts Value.	No. of Cycles and Value.		Parts Value.
		£	£		£	£		£	£		£	£
January ...	77	25,590	7,480	58	2,026	673	50	19,006	2,733	8	214	138
February ...	62	20,209	6,335	63	2,389	1,003	79	39,772	4,532	2	54	52
March ...	49	14,749	7,862	46	1,471	1,024	36	20,783	3,440	14	290	55
April ...	55	16,590	9,635	46	1,459	608	38	19,697	7,885	8	369	59
May ...	55	15,670	10,014	60	2,181	1,803	17	8,572	3,270	1	60	40
June ...	59	16,797	13,239	83	2,286	1,293	20	11,491	2,815	17	512	109
Total ...	357	109,605	54,565	356	11,812	6,404	240	119,321	24,675	50	1,499	453

COMPANY DOINGS.

NEW COMPANIES REGISTERED.

Motor Yacht Club Proprietary (Limited), 18, Down Street, Piccadilly, W.—Registered with 20 members, each liable for £1 in the event of winding-up.

Newton, Bennett, and Carlisle (Limited), 35, King Street West, Manchester.—Capital, £25,000 in £1 shares (10,000 six per cent. preference). Object, to acquire and amalgamate (1) the business of a motor car dealer and agent carried on by J. Newton, at 35, King Street West, Manchester, and (2) the similar business carried on by Bennett and Carlisle (Limited), at 239 and 241, Deansgate, Manchester. First directors, J. Newton (managing director), J. A. Bennett, R. H. Carlisle, R. Newton, and W. Kay, J.P.

T. and R. Young (Limited).—Capital, £1,000 in £1 shares. Object, to acquire the business carried on at 12 and 14, Semley Place, Eason Square, S.W., by T. H. Schultess-Young as Martin's Motor Mart and Garage, including the Pall Mall cycle business, formerly carried on by the Wilkinson Sword Company, Limited. T. H. Schultess-Young is permanent managing director.

Motor 'Bus Progress.—At an extraordinary meeting of the London Motor Omnibus Company, Limited, an increase in the Company's capital from £103,000 to £303,000, by the creation of 40,000 6 per cent. Cumulative Preference Shares of £5 each, was authorised. Mr. A. T. Salisbury Jones, the chairman of the Company, stated that their now well-known "Vanguard" service from Brondesbury to the Law Courts was running most successfully. The receipts since they first started on March 28th have been consistently good from the first day, the aggregate average earnings per mile showing a steady and uninterrupted increase. The average takings per mile to date were better than those of the first week by upwards of 2d. per mile. In April, 212,250 passengers were carried, the takings being £1,170. In May, 308,462 passengers were carried, the receipts amounting to £1,937. In June there were 591,745 passengers, and receipts were £3,666. In all 1,100,000 passengers had been carried up to July 1st. It was announced that a working arrangement had been come to with the London District Motor 'Bus Company, in order to avoid competition and friction, this arrangement, it was considered, being to the advantage of both the Companies. Although the authorisation of the capital increase was sanctioned, it was announced that there was no intention to make any issue of these Preference Shares at the moment, but that it was deemed advisable to have the power to do so when requisite, without waiting for the delay which might ensue in calling a special meeting for the purpose. The chairman stated that he thought he could promise that before the end of the year the directors would be able to declare an interim dividend.

The Motor Pneumatic Tyre Company (Limited), prospectus is to be issued next week. The capital is £150,000. The formation of the company is mainly for the purpose of acquiring the Seddon motor tyre patents which have been now for some time so well known. A strong Board of Directors appears in the prospectus, and strikes us, moreover, as being a particularly practical one, whilst the company will start being able to supply their goods forthwith under a special contract, of which they will get the benefit, with Messrs. David Moseley and Sons, Limited, of Manchester, for the manufacture of their special tyres. A speciality of the Seddon tyre, as worked by this company, will be for motor omnibuses and other heavy road motor vehicles. The company also obtain control over the patents for the United States of America, the French and the Belgian patents.

COMMERCIAL POINTS.

As showing how inexpensive a light car may be, if well made in the first place, and intelligently cared for in the second, the experience of Dr. Dowse, M.D. Dub., L.R.C.S.I., with his 6-h.p. De Dion is instructive. He has had this car since June 3rd, 1904, has always driven it himself, and it has been kept oiled and cleaned by his indoor servant. During the year, the car has covered a distance of 3,236 miles at a total cost, including petrol and lubricating oil of £10 0s. 4d. (under 3d. per mile). The only involuntary stop was for a broken wire at the sparking-plug, and the only repairs (costing 24s.) were two new spring-leaves, to replace those broken by travelling over exceptionally rough roads. Dr. Dowse is naturally extremely satisfied with his experience as a motorist, particularly as he has never had a puncture and has never found it necessary to tighten a bolt.

UNDER the title of the Mutual Motor Car Assurance Association, Messrs. Ernest Schofield and Geoffrey Smith advise us they are forming an association for the purpose of assuring motor cars under private ownership whilst employed in a reasonably careful manner, and in a private capacity, in any part of the United Kingdom. The address of the proposed Association is 32, Sackville Street, W.

THE MOTOR CAR CO. (1905) LTD., have opened their ground floor premises at 168, Shaftesbury Avenue as a depot for the sale of second-hand cars. The system employed by the Company is to have each car examined by experts, and to give written certificates to the ultimate purchaser of each vehicle. The Company have also arranged for their garage to be open day and night with a com-

petent staff in attendance, a stock of accessories and spare parts, motor spirit and lubricating oils being always at hand. This branch of the Company's business is in the hands of Mr. Harry Nelson, who for some time has been well known in the automobile trade.

AN interim dividend of 6 per cent. on the Preference Shares and 25 per cent. on the Ordinary Shares of Friswell, Limited, has been declared for the half year ending June 30th, 1905.

DE DION BOUTON cars appear to be maintaining their good reputation for reliability in Australia. Besides securing first and second place in the Sydney-Melbourne event, Mr. E. Norton Grimwade, on a 10-h.p. De Dion car with 4-seated touring body, in a 100-mile non-stop trial at Melbourne, has just, we learn, obtained full marks. The car ascended 1,800 ft. at an average speed of 25 miles an hour the whole journey, and used 4 gals. of petrol.

PRINCE ARISUGAWA of Japan, at St. James's Palace, after inspecting and testing a 30-h.p. Darracq car on Saturday last, concluded by becoming its owner. One of the Legation secretaries informed Mr. Beardwood, the representative of Messrs. A. Darracq and Co., that owing to the scarcity of horses in Japan due to the war, there was a big opening for motor cars there. The car is at present being got ready for shipment by the Darracq Company at their Oxford Street premises, and can be inspected by anyone interested in same.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

17729. 15th August, 1904. Improvements in Tractors for Agricultural Purposes. E. A. Taine, 26, Rue Hamelin, Paris. The object of this invention is to increase the adherence to the ground whatever the weight of the tractor or the nature of the soil. For this purpose an endless chain is placed round the wheels of the tractor, which are provided with sprocket teeth. The chain forms a continuous rail, having links provided with blades or teeth adapted to successively engage the surface of the soil as the tractor advances, so as the better to overcome the resistance of the agricultural machines drawn. There are eight figures. Fig. 1 is an elevation of the tractor, parts of it being diagrammatical. The frame, *a*, is carried on the springs, *b*, on a cross-frame, *c*, and the rear part of the frame on an axle, *d*. The steering-wheels, *e*, are mounted in vertical forks, *f*, each of which is pivoted to the end of the cross-frame, *c*, so that its vertical axis of rotation is in the line, *z z*, while the driving wheels, *g*, are

mounted to give a variable supply, its passages for air and liquid hydro-carbon being capable of a simultaneous and proportionate increase or decrease. The variation is effected by hand by means of a bell crank lever. There are two figures. The carburettor shown, Fig. 1, a part section, comprises a chamber, 1, containing petrol at a constant level and an air chamber, 2, closed at its upper part by a cover, 3 having an opening, 4, through which air enters the chamber. At the upper part of the chamber fits, 5, a conical or funnel-shaped piece, inside which a disc, 6, can be moved up and down by means of a bell crank, 7. The upper side of the disc, 6, has a hollow cylinder, 8, fitting and sliding smoothly within the lower part of the cone, 5, and surrounding a step cone, 10, fitting round the nozzle on the base of the chamber, 2. The cylinder, 8, is provided with ports, 16, for permitting the air entering by the passage, 4, passing into the cylinder, 8, whence it passes to the space, 17, and thence to the

consequently entirely unaffected by the suction stroke of the motor piston. If the disc, 6, be raised by means of the bell crank, 7, the air passage round the spraying nozzle, 11, not only increases as the disc rises, but at the same time the supply of petrol increases proportionately because the lower part of the tube, 18, uncovers successively the passages, 13, 14, which being then subjected to the suction created in the chamber, 8, come successively into operation. June 22nd, 1905.

Patent Specifications Published.

Applied for in 1904.

Published July 13th, 1905.

- 11,351. J. H. CHAMBERS. Automobiles.
- 13,747. E. HENSTON. Flying machines.
- 14,024. A. DUNBELL. Waterproof garments.
- 16,619. G. W. SOMERVILLE. Ignition apparatus.
- 17,189. RUDGE & WHITWORTH, LTD., AND C. V. PUGH. Brake and clutch mechanism.
- 17,751. W. C. H. SCOTT. Mowing attachment.
- 17,705. GENERAL ELECTRIC CO. Vapourisers.
- 17,810. GENERAL ELECTRIC CO. Self-propelled vehicles.
- 18,220. C. H. GAMESON. Oil separators for steam motor cars.
- 24,847. G. GILBERT AND E. MUSHING. Change-speed-gear.

Applied for in 1905.

Published June 15th, 1905.

- 200. T. L. STURTEVANT. Variable speed gearing.
- 2,421. F. D. NORMAN. Make and break devices.
- 3,591. L. BOULEZ. Sparking plug.

Published June 22nd, 1905.

- 1,149. F. W. HEDGELAND. Motor road vehicles.
- 3,527. H. GILARDONI AND H. LERICHE. Speed-gear.

Published June 29th, 1905.

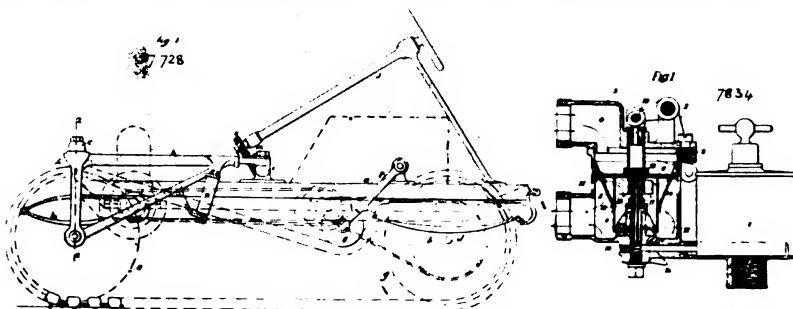
- 2,941. W. S. MORGAN. Axle.
- 7,078. ALBION MOTOR CAR COMPANY, LTD., AND T. H. MURRAY. Lubricators.
- 8,113. A. FAKKAS AND J. KIRFFER. Ball joints or couplings for transmitting power.

Published July 6th, 1905.

- 2,592. M. POLACK. Solid resilient tyres.
- 2,628. A. SCHOLLER. Ignition device.
- 7,834. L. REVAULT. Carburettors.

Published July 13th, 1905.

- 3,414. F. LAMFOUGH AND ALBANY MFG. CO. Steam valves.
- 8,485. L. W. DANTAN AND A. F. HAWKINS. Exhaust boxes.
- 10,795. J. N. A. GOMIN AND J. A. DUVAL. Irreversible steering mechanism.



loosely mounted on the axle, *d*, and have the same gauge and diameter as the steering-wheels. By this arrangement the steering-wheels, *e*, can be moved to the right or left for the purposes of steering without movement of the wheels themselves forward or backward. For simultaneously changing the direction of both wheels, *e*, levers, *h*, are used integral with the forks, *f*, and connected by a toothed rod or rack, *i*, sliding transversely. The rod is operated by means of the steering-wheel and rod, *j*, and the pinions, *k* and *m*. For guiding the floating link of chain over the wheel, *e*, two guide rollers, *n*, are used between which the chain passes. The chain is also kept comparatively tight by means of the weighted roller, *o*, fitted to an oscillating lever, *p*. June 22nd, 1905.

7834. 12th April, 1905. Improvements in Carburettors for Internal Combustion Engines. Louis Renault, 139, Rue du Print du Jour, Billancourt, Seine, France. Date under International Convention, 7th January, 1905. The object of this car-

suction pipe of the motor. The cone, 10, enables the passage from the cylinder, 8, to the space, 17, to be completely closed, but if the cylinder, 8, and disc, 6, be raised by means of the bell crank, 7, an air passage is obtained, the area of which is proportional to the lift, thus the quantity of air passing increases in proportion to the lift. The disc, 6, has at its centre a tube, 13, which passes through the cover, 3, and is open to the atmosphere through 10. The lower part of the tube, 18, is of reduced internal diameter, and slides smoothly over the spraying nozzle. According as the disc, 6, is more or less raised a greater or less number of outlets for petrol is uncovered and subjected to the suction produced in the cylinder, 8. In the lowest position the disc, 6, closes the air passage. The petrol outlet, 12, communicates with the inside of the cylinder, 8, while the other two passages, 13 and 14, for the petrol are covered by the tube, 18, and so communicate with the atmosphere through the opening, 19, and are

The Automotor Journal, July 22nd, 1905.

THE AUTOMOTOR JOURNAL

A RECORD AND REVIEW OF APPLIED AUTOMATIC LOCOMOTION.

Circulates amongst Makers and Users of Motor Cars, Cycles, etc., in the United Kingdom, the Colonies, and the Continent.

Offices: 44, St. Martin's Lane, London, W.C.

No. 237. (No. 29, Vol. X.)

JULY 22ND, 1905.

[Registered at the G.P.O.
as a Newspaper.]

[Weekly, Price 8d.
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THE GLIDDEN CUP ROUTE.—A specimen of the scenery in the White Mountains which the competing cars traverse. A White Steam Car, seen in the picture, was driven over the difficult and rough route without any troubles arising. A series of the pictures obtained under these circumstances are published by us elsewhere this week in addition to the above charming photograph. The competing cars started from New Rochelle, near New York, on July 11th, and finish to-day (Saturday) at Yorkers, during which time about 900 miles were to be traversed, including the Bretton Woods and Mount Washington in the famous White Mountains. The run is in the nature of a "go as you please" touring car event, so long as "you get there." About 40 cars were entered for the start, including two to be driven by ladies.

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NOTICE.—Advertisement instructions should reach the office, 44, St. Martin's Lane, W.C., by first post, Wednesday. The latest time for receiving small alterations for Advertisements is 12 noon, Wednesday. No alterations can be made after that hour.

DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
July 25-26 ...	Motor Boat Races, Plymouth (M.Y.C.)
July 26 ...	Motor Boat Gymkhana (B.M.B.C.).
July 27-28-29 ...	*Blackpool Motor Meeting.
July ...	24 Hours Run (Motor Cycling Club).
Aug. 1 ...	Motor Boat Races, Sea View (M.Y.C.).
Aug. 2-3 ...	Motor Boat Races, Southampton Water (M.Y.C.).
Aug. 2-3 ...	*Motor Boat Trials (Southampton).
Aug. 7 ...	Motor Boat Races, Solent (B.M.B.C.).
Aug. 8 ...	Motor Boat Races, Solent (M.Y.C.).
Aug. 9 ...	Motor Boat Races, Southampton (B.M.B.C.).
Aug. 10 ...	Motor Boat Races, Cowes (B.M.B.C.).
Aug. 11-12 ...	Motor Boat Races, Solent (M.Y.C.).
Aug. 11 or 18 ...	*Quarterly 100 Miles Trials.
Aug. 14-19 ...	Auto Cycle Club 750 Miles Reliability Trial.
Aug. 15-16 ...	Motor Boat Races, Ryde (B.M.B.C.).
Aug. 26 ...	Inter-Team Trial (Motor Cycling Club).
Sept. 2 ...	Skegness Races on Sands (Notts A.C.).
Sept. 2 ...	Auto Cycle Club, Consumption Trial.
Sept. 9 ...	Brown Cup (Motor Cycling Club).
Sept. 12 ...	Auto Cycle Club Race Meeting.
Sept. 14 ...	*Tourist Trophy (Isle of Man).
Sept. 15 ...	*Daily Graphic Cup (Isle of Man).
Sept. 20 ...	Motor Boat Burnham-on-Crouch (B.M.B.C.).
Sept. 20, Oct. 24 ...	*Van Trials.
Sept. 23 ...	Scottish A.C. Hill Climb.
Oct. 4 ...	*Speed Trials.
Oct. 7 ...	Scottish A.C. 100 Miles Run.
Oct. 14 ...	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17 ...	*Quarterly 100 Miles Trials.
Nov. 17-25 ...	Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.	
July 20-26 ...	Paris to the Sea (Journal de L'Automobile).
July 28-Aug. 8 ...	Paris Industrial Vehicles Trials (A.C. France).

* Automobile Club of Great Britain and Ireland Events and Papers.

July 27 ...	Gaston Menier Cup (Motor Boats).
July 31 ...	Anthony Drexel Cup (Motor Boats).
Aug. 6-7 ...	Circuit des Ardennes.
Aug. 10-11 ...	Paris-Deauville (Electric Vehicles).
Aug. 10-16 ...	Herkomer and Bleichroder Races.
Aug. 12 ...	International Cup for Motor Boats.
Sept. 1 ...	Lake Geneva Motor Boat Meeting.
Sept. 2-3 ...	Ventoux Hill Climb.
Sept. 2-10 ...	Brescia Automobile Meeting.
Sept. ...	Tri-Car Competition (L'Auto).
Sept. 10 ...	Vincenzo-Florio Cup.
Sept. ...	Tourist Car Trial (A. C. de France).
Sept. 3-10 ...	Royan Meeting.
Sept. 3-10 ...	Spa Automobile Club.
Sept. 11 ...	British International Cup (Motor Boats Arcachon).
Sept. 12-14 ...	Lake Lucerne Motor Boat Meeting.
Sept. 19 ...	1/2 Litre Consumption Trials (Motor Cycles).
Sept. ...	Motor Bicycle Race (French Ardennes).
Oct. ...	Vanderbilt Cup.
Oct. 1 ...	Chateau Thierry Hill Climb.
Oct. 15 ...	Gaillon Hill Climb.

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AIX- LA-CHAPELLE , J. A. Mayer, Eisenbrunnen.	PARIS OFFICE, F. Tennant Pain, 8 Rue Favart; Galignani's Library, 224 Rue de Rivoli; Librairie Timotie, 14 Rue Castiglione; Librairie Byron; 8 Rue Castiglione; Librairie Shakespeare, Avenue des Champs Elysées; Librairie Celtic, Rue Marboeuf; Librairie Anglaise, Avenue Victor Hugo, the Kiosques at the Nord, Lyons (P. L. M.), and St. Lazare Termini; and at the principal Kiosques on the Boulevards.
AIX- LES-BAINS , A. Gerent, 32 Rue de Genève, and F. Mabboux, Place du Revard.	ROTTERDAM, Nederlandsche Kiosken Mijp, Wijnhaven 85.
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BERNE, Schmid & Francke.	
CARLSBAD, Hoffmann & Epstein, Alte Wiese.	

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PASSING EVENTS.

The Results of Incitement.

WHEN the Marquis of Queensberry and Canon Greenwell promulgated their suggestions that motorists ought to be shot at sight, we felt quite sure that had they realised that their remarks would be translated into action by some downright individual who did not possess the gift of humour, they would both have been highly shocked, and would have declared that such a suggestion involved a needlessly prosaic and alarmist view of the situation. But this is exactly what has happened. An inhabitant of the village of Bromley in Kent—a spot which is almost a London suburb—has taken these incitements literally, and discharged a rook rifle at the head of Mr. Alfred Hewett and some friends who were driving through Orpington on Friday last. The rook-rifle-motor-car-pepperer was ultimately taken into custody, and alleged, apparently in self-defence, that “they ran over my children and I shot at them.” He will, of course, be tried, so about his case we say nothing, and we do not particularly wish to see either the Marquis of Queensberry or Canon Greenwell in the dock as having incited to the outrage which has now been committed. But we would point out to them that under different conditions that is the place they might certainly have occupied. If they were at present living in Ireland, and had in equally clear and unmistakable language declared that a man who took a grazing farm ought to be shot, and if within a short time afterwards such a man had been shot, they would have found themselves in a very tight place indeed. When a staid ecclesiastical dignitary like a canon supports a popular nobleman in advocating recourse to the shot gun (whether in joke or not), it is not to be wondered at if the ordinary agriculturist, who is not usually gifted with much sense of humour, takes their advice a little too seriously.

* * *

Useful, However, for Practice.

THERE is a town on the west coast of Ireland which shall be nameless, where there once lived a member of the Irish constabulary who was called upon to despatch with a revolver—an indispensable part of the equipment of the R.I.C.—a stray cur which had been led before him for destruction. The representative of law and order took deliberate aim at the head of his victim, pulled the trigger, and shot off the last inch of his tail, after which he became so celebrated in the neighbourhood that he had to request his transference to another part of the country. We are reminded of this occurrence by the extraordinary story which comes to us from New York, where a policeman (who had been instructed to pull up recalcitrant motor cars which refused to stop when called upon to do so, by puncturing their tyres with a pistol) fired at the tyres of a passing motorist, and wounded the motorist in the thigh. This is the sort of thing that happens when in civilised countries either the authorities or others have recourse to brute force. They generally hit the wrong target. To make a bullseye on the wrong target is about the most humiliating misfortune that can occur to the marksman. At ordinary rifle practice the perpetrator is fined half-a-crown, but the New York policeman, it is to be hoped, will not get off quite so lightly as this.

The Report of the Royal Commission on London Traffic.

THE first volume of the Report of the Royal Commission on London Traffic has been published, and altogether it is quite in accordance with the previous unofficial statements which have been made in the Press, the principal proposals put forward being as follows:—

1. The creation of an authority or board with limited and special powers, having the general control of measures affecting locomotion and transport in London; such board being appointed by His Majesty's Government.
2. Extension of the tramway system and the linking up of north and south.
3. Absolute abolition of the veto now possessed by certain authorities to prevent the construction of tramways.
4. Further development of railways; railways in shallow subways being deemed preferable to “tubes,” where the cost is not prohibitive.
5. If private enterprise will not construct the necessary railways, the local authorities might be empowered to give assistance by remission of rates or direct contribution.

On the whole, the Report is a disappointing document. The organisation of the Traffic Board may do some good, and will, no doubt, provide comfortable posts for the people appointed to it. The general adoption of subways, particularly the great subways under Hyde Park and elsewhere which are proposed, will, in some ways, conduce to diminish traffic, and there is no doubt that the great thoroughfares that the Commission suggests, the so-called “main avenues,” would have a still greater effect in the same direction. Unfortunately, the Commission at the same time suggest that the commencement of these avenues should be postponed to the Greek Kalends, or to a time when London will be in a position to pay for them.

The most astonishing feature of the Report, however, is the extent to which it bows down before the electric tram, proposes an enormous extension of the electric tram system, and even suggests four electric tramlines running abreast on its ideal “main avenues” —when they are made. We have already dealt with the extent to which the indefinite multiplication of trams is likely to impede London traffic. After this it is not to be greatly wondered at that the attitude adopted by the Commission to the motor 'bus is not a very sympathetic one, as they are “of opinion that on routes suitable for tramways where there is a large traffic, tramways will continue to be the most efficient and the cheapest means of street conveyance, and they cannot recommend the postponement of tramway extension in London on the ground of any visible prospect of the supersession of tramways by motor omnibuses.” Well, of course, the Commission began their labours some time ago, and possibly the Report was practically finished before the recent demonstrations of what the motor 'bus can effect had been placed before the eyes of Londoners. But there was plenty of evidence of what it could effect long previously provided in provincial towns, and one might expect a Royal Commission to have some cognisance of the world generally, and not, as in Mr. Kipling's words, to imagine that “The empire stops at Charing Cross.” It is, therefore, with some surprise that we find the Commissioners have discovered such a distant fastness as Brentford, and have even animadverted on the state of traffic which regularly prevails in that unsavoury townlet. In spite of the Royal Commission's Report, we fear that things will be still allowed to “muddle along” much as they used to do.

D

The Brighton Race Meeting.

THE attention of the whole automobile world, at any rate, that portion of it which is interested in sporting events (and that of course means the great majority of car owners or producers), is this week concentrated on the Brighton Madeira Walk, where a huge number and a great variety of motor cars and motor bicycles are showing their maximum speed capabilities, to the great entertainment of the inhabitants. All possible praise must be bestowed upon the initiative of the Brighton Corporation and the admirable manner in which they and the A.C.G.B.I. have organised the meeting, and everyone will hope that the result will be satisfactory from every point of view as a commercial speculation for the town. There is no question that the Corporation deserves well of the automobile movement for the trouble to which it has put itself in arranging the meeting, and though we have felt it to be our duty to strongly question the wisdom of holding speed contests of this kind at the present juncture—when we may say without any exaggeration that the future of the automobile movement is about to be thrown into the Parliamentary melting-pot—it must be recognised that the large number of entries which have been registered for the Brighton events proves most incontestably that sporting events, in which car can compete with car and driver with driver, are greatly appreciated by the car owners or by car makers of the country, or by both these sections of the motoring community.

A Reason for Reflection.

THIS very fact should provide the strongest possible inducement for everyone interested in the automobile movement to thoroughly and carefully consider the situation. The Brighton and Blackpool meetings will no doubt go off this year without let or hindrance, even though, as we have already pointed out, they may leave some unpleasant effects behind them in the way of giving point to the arguments of enemies of the movement. But whether such meetings are wise or not, at the present time, it is quite certain that no far-seeing automobilist can look upon them, either at Brighton, Blackpool, or anywhere else, as being thoroughly satisfactory institutions, no matter from what point of view they are regarded.

Apart from the fact that such events are liable to have a very injurious effect on the industry by influencing future legislation adversely—as pointed out by us with special emphasis last week—the very multiplicity of winners, and the almost irritating sameness of most of the heats, are bound to detract from the interest that might otherwise be taken by the public, while, above all, the results of this type of race can never form a real guide as to the true relative merits of the competing vehicles, and therefore purchasers and makers alike are doomed to dissatisfaction, whether the event is regarded from a sporting or from a commercial point of view.

A Matter for Manufacturers.

It is naturally the makers who have most to lose by any retrograde legislation, and it is they too who have most to gain by fostering events of a sufficiently attractive kind to render them permanently popular, for not only will owners of their cars then gradually relieve them of the expense of taking an active part themselves, but those who build the best touring vehicles will benefit accordingly.

For this reason, therefore, we feel that manufacturers in particular ought to give their most careful attention to the elaboration of satisfactory rules for holding competitions and sporting events on the same or similar lines to those which we sketched out last week, and with which we are still dealing.

It is not as if racing events of the Tourist Trophy type would involve an increased expenditure. Any idea that the manufacturer will have to undertake an elaborate series of experiments, in order to successfully compete, is wholly mistaken. It is just as costly, for instance, to develop a form of carburettor that will give maximum power, regardless of efficiency or anything else, as it is to develop one that will give the most desirable all-round results for touring—not for mere racing—purposes. As a matter of fact, it would actually save money if the aims of the designer were identical, whether he wished to produce a car that would give the greatest satisfaction to the ordinary user, or whether his object were to supply the most suitable vehicle for competing in the various racing contests of the year. Look at it as one may, it should obviously be the policy of the manufacturer, even more than of the user, to see that the sporting side of the movement is directed into the right channel, and it is for him to take care that no important automobile competition in the future is the mere farce that many of them are now rapidly becoming. There is no time to be lost in grappling with the problem, for, otherwise, it will be too late to retain such interest as now prevails.

United Action Essential.

It is only if something like practical unanimity is attained that progress will be possible, and to attain this unanimity every real automobilist must consider the subject carefully and formulate proposals. We have already received a large number of letters on the subject, the first batch of which we propose to publish next week. The expression of views should be as wide and universal as possible.

It is a very burning question, and we most sincerely trust that our readers will not content themselves with a passive attitude, in which they merely agree with what we or others have said. They must take serious and active steps to promote unity and agreement if they are really enthusiastic on behalf of the cause.

The present proposals, as outlined by us in the special article devoted to the subject, amount to a classification of cars according to the power available (from the fuel), and their weight, while certain restrictions are imposed in order to eliminate all but *bona fide* touring cars from taking part in the race. Mere speed, which after all said and done is not what real touring cars are built for, is no longer made of supreme importance, but the car that stands the best chance of winning is that which is the fastest *in spite* of being the most reliable, durable, and efficient. Quite as important as the opinions of all motorists on the general issues at stake are the views of manufacturers as to what they consider might fairly be taken as the limits of weight, size, and fuel allowance for one or more standard types of car.

The Apotheosis of the Policeman.

It has long been said that good Americans when they die (and sometimes before that catastrophe occurs) go to Paris, and there is now reason to hope that a similar improvement in condition will overtake the functionary whom the Irish priest described as the “common policeman walkin’ the shreet,” at any rate when he retires from the police force; that is to say, he may become a

driver of a motor car. Such, at any rate, is the example which has been set by H.M. King Edward, who has selected his most recent driver, Henry Payne, from the ranks of the Metropolitan police force. Policemen are often excellent fellows when left alone by joint committees and other fussy functionaries, and we have no doubt that the ex-Metropolitan policeman will make His Majesty an admirable driver. In the meantime the appointment ought to open up a new vista to policemen of possible promotion in the future. We trust that from this point of view the diplomatic action of His Majesty, who has for some time past been recognised as the ablest diplomatist in Europe, will have the effect of imbuing the police with kindly feelings towards the form of locomotion towards which they are popularly supposed, at any rate in many instances, to cherish a special aversion.

♦ ♦ ♦ This Smacks of Priestcraft.

ONCE upon a time we were very enthusiastic about the Iveagh-Pirie scheme for regenerating Ireland by motor car and motor delivery van. The "distressful country," however, is a remarkably tough place to regenerate. The admirable scheme which has been elaborated for its benefit has been practically rejected by the County Councils. The Irish County Councils seem to nourish the same objection to the new locomotion, and to all the benefits which the country might derive from it, as our forefathers did to the old steam cars, and they are combating them with the very same weapon—the inability of their bridges to stand the traffic. That is what they allege, and they have refused to go to the necessary expense for strengthening the bridges and improving the high roads. It is a fatuous policy, and anyone who knows Ireland will not be long in fixing upon the sinister influence which dictates it. There is a powerful class in the country, not inaptly characterised by the poet Béranger, as

"Des autres nains tous noirs,
"Dont mon nez craint les encensoirs."

These gentlemen are greatly afraid of the enlightening effects which modern progress, particularly mechanical progress, may produce in their special sheep-fold, and they have a tremendous influence on the County Councils.

♦ ♦ ♦ Sir Ralph Payne Gallwey as Ulysses.

WE had not hitherto imagined that there was much resemblance between Sir Ralph Payne Gallwey and Ulysses. But if Sir Ralph does not share the proverbial wisdom of the hero, it seems that he can to some extent lay claim to rivalling him as a wielder of the bow. He possesses an extraordinary Turkish bow, said to be 200 years old, and with this he shot three arrows into a space 18 yards by 10 yards, the furthest travelling a distance of 367 yards. The previous archery record in this country is believed to be 340 yards. Sir Ralph Payne Gallwey was the original suggester of the proposal of stopping motorists by firing at their tyres, a process which has led to such a lamentable misfortune in the neighbourhood of New York. Should he emerge upon the high roads armed with his Turkish bow, with a quiver in which "the arrows rattle on his shoulder as he goes along raging at heart," and form a picturesque addition to some of our well-known police traps, such a proceeding will be in thorough keeping with the attempt to put back the hands on the clock of progress with which Sir Ralph Payne Gallwey, Mr.

Cathcart Wason, Mr. Soares, and that "Mons Meg" of our northern counties Canon Greenwell, and others of his sympathisers have identified themselves.

♦ ♦ ♦ Bookmaking Up-to-Date.

THE humourists at Spring Gardens are continually occupied in preparing further delightful surprises of a Gilbertian nature for their constituents. They seem to be determined on making a corner in practical joking. At least this is the only conclusion to which one is led by the *Standard's* account of their most recent "*magnum opus*," the County of London Drivers' Licence. The work in question consists of 8 pages duly bound and gold lettered. The first page is the licencing form, which is practically the same as that previously in use, except it would appear that the licensee is not required to append his signature, while the other 7 pages—left blank except the headings—are entitled "Particulars of Endorsements." It is evident that the County Council has taken to heart the recent *obiter dictum* of a leading Metropolitan magistrate that he would not care a (something or other) if his licence were covered with endorsements. They have provided plenty of room for licences to be endorsed. That it is not exactly a compliment to the licence-holder goes without saying, but it will certainly be appreciated by the manufacturers of paper. Once upon a time a well-known paper factory produced a single sheet of paper (presumably for exhibition purposes) some two miles in length. No one quite knew what to do with this monumental achievement until a solicitor discovered that it was the very thing he wanted to make out a bill of costs upon. Next year, we shall probably see similar lengths of paper specially manufactured for attachment to drivers' licences.

♦ ♦ ♦ The Motor Car Volunteer Officers.

ONE of Mr. Anthony Hope's novels describes a country of romance in which all the inhabitants objected to being commoners, so the presiding potentate issued a ukase to the effect that henceforth everyone a citizen of, or born into, his kingdom should be *ipso facto* a nobleman, and everybody was happy. A somewhat similar suggestion has been put forward regarding the motor car volunteers. In this *corps d'élite*, if the proposal is agreed to, there will be no longer any such ordinary mortals as privates. The lowest rank will be that of lieutenant. At first sight the idea of a regiment in which everybody is an officer, and there is no one to command or order about, might excite the hilarity of the uninitiated, and, as a matter of fact, there has been a certain amount of sarcastic writing on the subject in the columns of the daily press. As a matter of fact, there is more reason in the suggestion than at first sight appears, and though the cynics may smile, it is after all quite a reasonable arrangement. Practically all the owners of motor cars will be doing the work of staff officers, and this should entitle them to this rank in the field, quite apart from the fact that they are mostly men of leisure and position, to retain whom on a military footing of equality with the privates of marching regiments would be absurd. As, however, the cynics are likely to make merry over the idea of a regiment entirely composed of officers, it is just possible that the War Office authorities might with advantage convert all the members of the Corps into Staff Officers, and attach them permanently to that branch of the service, the regiment as such ceasing to exist.

CROSS-CHANNEL MOTOR-BOAT RACE.



BOULOGNE-FOLKESTONE RACE.—Napier II. at full speed, Mr. Edge's boat made the best time, but has been judged second place upon a technical point.

THE second International Cross-Channel Motor-Boat Race took place on Saturday, the 15th inst., over a course of 51 knots, from Boulogne to Folkestone and back, and resulted in a British triumph—Napier II., piloted by Macdonald, actually covering the distance in 2h. 24m. 47s., which is equivalent to a mean speed of 24.4 m.p.h. The next fastest boat—La Rapière—took 2h. 25m. 50s. for the course, but has been officially declared the winner because Macdonald steered Napier II. past the wrong side of the winning post.

When informed of his mistake Macdonald at once put about in order to make a "technical finish," and Napier II. is thus officially credited with 2h. 27m. 4s. instead of the faster time.

That the French should desire to claim a victory on merely technical grounds is an unsportsmanlike action, which would hardly find credence in England, had we not, unfortunately, already had a somewhat parallel experience in connection with last year's B.I.C. As a matter of fact, Mercedes IV., which secured the cross-channel race for France last year, *has not crossed the line to this day*, but

she was the fastest boat, and no Englishman—least of all Mr. S. F. Edge—thought of despoiling her of the honours which were her due. It is all the more remarkable, therefore, that the French should not have taken this opportunity of reciprocating, because, even if technicalities are more to them than sport, courtesy is popularly supposed to be their national virtue. Doubly would they be justified in acknowledging Napier II. the winner, as, although not actually part of the rules, it was generally understood that a French torpedo boat would show the way from start to finish; so that when this pilot passed to the west of the Boulogne harbour and crossed what was the starting line, Macdonald naturally followed, being immediately greeted by the boom of the winning gun. This recognition of Macdonald's action—made in the presence of many race officials, including Count Recoupé himself—prevented Macdonald from at once becoming aware that he had been guilty of any technical error; for had he known, he could, even then, easily have entered the harbour before La Rapière.

The misapprehension, we since learn from Mr. S. F.

BOULOGNE-FOLKESTONE RACE.—Palaisoto leading La Rapière, the winner, at Folkestone, Palaisoto being the first to round the mark boat this side of the Channel.

BOULOGNE-FOLKESTONE RACE.—Another view of Palaisoto (No. 4) and La Rapiere (No. 1) in their close race.

Edge, was also due to Macdonald not having had an opportunity of studying the rules prior to the race, as by an error they had been sent, not to Mr. Edge as they should have been, but to the Automobile Club. With what we may almost term quixotic generosity, Mr. Edge has decided that he is quite content with having demonstrated the superiority of the British boat, and does not intend to fight the disqualification—a fight in which, under the circumstances, he should almost certainly be successful. Napier II. will accordingly only carry off the first prize in the 12-metre class, instead of the Cup to which she is morally entitled.

Far more difficult was the race from Boulogne to Folkestone and back than was that from Dover to Calais last year. In the first place, the course was more than twice as long, and also the sea was by no means as calm. It is not altogether surprising, therefore, that so few finished, and it is all the more creditable that one of them—and that the first—should have been an English boat. Napier II. is the famous Yarrow-Napier craft which we described and illustrated in our issue of March 11th, 1905. It has a steel hull, and a pair of 4-cylinder engines operating twin propellers. The Napier, owned by Lord Howard de Walden, also competed, but the

engines got swamped when within a few miles from home, and the boat had to be towed in.

Palaisoto I, which was the first boat to turn the mark at Folkestone, had to be towed in, owing to the seas disabling the engine, while Mercedes-Charley and Pas-Pressé, both of which also had the same trouble, eventually reached Calais. Le Dubonnet, which has engines of some 300-h.p., was another competitor to make an ignominious return in tow; but her hull, which had been damaged in collision in harbour the night before, was not in a fit state for racing, and it was foolish to have started in such an unseaworthy condition.

Among the cruisers there was only one boat, the Fiat, entered by an Englishman. It was piloted by Lieut. Vereker, and, after making good running over a somewhat circuitous course, finally arrived at Folkestone, where the race was voluntarily abandoned owing to the illness of the mécanicien.

The best performance of all the cruisers was made by Forces Pas, Dietrich II. coming next. Cazmoto and Gardner-Serpollet being the only other boats of this category to finish the course. Aya IV. gave up at Folkestone; Le Tetu lost her way and finally arrived at Grisez; Chamber d'Antibes had engine troubles; and Frédéric Sauvage abandoned a few miles from the start.

An escorting torpedo boat "speaking" the cruiser
De Dietrich II.

A contrast to the racers. The serviceable boat, Cazmoto,
in the cruiser class, third in its category.

BOULOGNE-FOLKESTONE RACE.

seven out of nineteen starters finished—a much smaller percentage than were successful last year. There is no doubt whatever that the trial was much more severe; but it has at least served to demonstrate that this type of boat is incapable of shipping much water without being speedily disabled through engine troubles. Motor boats, however, must expect to ship water in reasonable quantities, and until they can do so without harm, their general utility will be much impaired.

Some of the boats apparently lost their bearings through faulty compasses, so that even certified pilots were literally "at sea," and this point alone is one which it is of first importance to set right, for motor boats should be capable of going out of sight of land without getting lost.

As a sporting event the race has much to commend it, and it is perhaps a pity that it receives so little official support on this side of the Channel, although in a great measure this, no doubt, is due to the action of the French club in retaining all matters entirely in its own hands, almost discouraging co-operation from foreign countries.

Times from Boulogne to Folkestone :—

Racers.

	H.	M.	S.		H.	M.	S.
Palaisoto I. ...	1	9	45	Napier II. ...	1	10	45
La Rapière ...	1	9	49	Napier ...	1	10	50

Cruisers.

Forces Pas ...	1	34	3	Dietrich II. ...	1	58	42
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Only one of the fishing boats completed the course, both the others having engine troubles. In all, only

MOTOR BOAT RACE.—BOULOGNE-FOLKESTONE AND RETURN, JULY 15th, 1905.

Place.	Name of Boat.	Owner.	Hull.				Engine.				Time (51 knots).	Mean Speed.	
			Builder.	Length.	Beam.	Free-board.	Con- structor.	Cyls.	Bore.	Stroke.			Cylinder Capacity.
Racers.													
CLASS II.—6.5m. to 8m.													
1	La Rapiere	... Panhard-Levassor-Tellier	Tellier-Gerard	... 7'98	—	—	Panhard	8	165	170	—	2 25 50	24
CLASS III.—8m. to 12m.													
1	Napier II.	... S. F. Edge	... Yarrow	... 12'12	—	—	Napier	4	162.5	150	19.5	2 24 47	24.2
2	Palaisot I.	... Neubaur-Farman	... Tellier-Gerard	... 12'0	—	—	Panhard	8	162.5	150	17.34	2 27 4	23.8
	Napier	... Lord Howard de Walden	Saunders	... 12'16	—	—	Napier	6	175	165	9.75	Abandoned.	
	Mercedes-Charley	C. L. Charley	... Pitre	...	...	...	Mercedes	—	—	—	—	Abandoned.	
	Pas-Presse	... Steyen	... Rivet	... 10'0	1'85	—	Berliet	4	120	180	6.72	Abandoned.	
CLASS III.—12m. to 18m.													
	Le Dubonnet	... Dubonnet	... Brosse-Foucher	... 17'9	—	—	Delahaye	4	—	—	33	Abandoned.	
Cruisers.													
CLASS II.—6.5m. to 8m. Max. Cyl. Capacity, Petrol 3.75 Litres, Paraffin 7.65 Litres.													
1	Gardner-Serpollet	Serpollet	... Creuilte-Griset	... 8'0	—	—	Serpollet	—	—	—	—	7 11 16½	8.2
	Aya IV.	... Fayaud	... Marchand	... 6'95	1'58	0.47	Filtz	—	—	—	4.75	Abandoned.	
CLASS III.—8m. to 12m. Max. Cyl. Capacity, Petrol 7.5 Litres, Paraffin 13.25 Litres.													
1	Forces Pas	... Cruca	... Pitre	... 9'98	1'90	0.58	Mors	4	126	150	7.56	3 31 47½	16.6
	Letetu	... Audré	... Tellier	... 8'10	1'62	0.49	Delahaye	4	135	130	7.02	Abandoned.	
	Chant. d'Antibes	... Deville	... Antibes	... 8'80	1'70	0.51	Delahaye*	4	135	130	7.44	Abandoned.	
	Fredric-Sauvage	... Creuilte-Griset	... Creuilte-Griset	... 9'0	1'75	0.65	Herald	4	—	—	—	Abandoned.	
	Fiat	... Vereker	... Woodnutt	... 9'23	1'77	0.84	Fiat	4	125	150	7.5	Abandoned.	
CLASS IV.—12m. to 18m. Max. Cyl. Capacity, Petrol 7.5 Litres, Paraffin 26.72 Litres.													
1	Dietrich II.	... Perignon	... Marguerite	... 12'18	2'10	0.65	Dietrich*	4	155	170	12.29	4 27 5½	13.1
	Cazmoto	... Cazes	... Anblard	... 12'02	2'70	0.68	Cazes*	4	190.4	228.6	17.33	5 21 29	10.9
Fishing Boats.													
1	Pas de Calais II.	Demoulin	... Demoulin-Lefevre	8'0	2'6	1.25	Panhard	4	—	—	—	7 8 27½	8.1
	Pas de Calais II.	Demoulin	... Demoulin-Lefevre	7'65	2'6	1.25	De Dion	2	334	110	—	Abandoned.	
	Maurice II.	... Cazes	... Seiller	... 11'0	3'0	1'0	Cazes*	2	177.8	152.4	—	Abandoned.	

* Heavy oil.

† Steam.

THE 1905 FIAT CARS.

A 24-h.p. Fiat Touring Car, fitted with side entrance body and hood, similar to that recently acquired by H.I.M. the German Emperor.

THE Fiat models of last year—which we described in our issue of Feb. 20th, 1904—differed, it will be remembered, very considerably from those of the preceding year. They were of very greatly improved design, and constituted in fact an almost new type—a type which has been wisely followed in this year's models. In certain details, however, the new chassis—for which the Fiat Motors Limited are the sole concessionaires in this country—are superior to those of last year, for they have been modified in accordance with the most approved practice and have been brought thoroughly up to date. Needless to say, they are of the same high-grade construction as hitherto, and are well calculated to retain the confidence of the motoring public on the score of their reliability and speed capabilities.

Two of the standard models are nominally the same power as those of last year, viz., 16-h.p. and 24-h.p., but the engines are now of larger size, and their actual output is nearer 25-h.p. and 40-h.p. respectively. The stroke of the cylinders has, for this purpose, been lengthened in the smaller model to 125 mm., and in the larger model to 150 mm., this being an increase of 15 mm. in the one case and 25 mm. in the other. The bore, however, remains the same as previously, being 110 m. and 125 m. respectively. The other standard car, which is a new model this year, has a 60-h.p. engine.

Previously the pistons had dome-shaped tops, but this shape has now been abandoned in favour of the flat ended type. Instead of screw fittings above the valves, the new engines have their inspection-covers held down

Fig. 1.—The 1905 Fiat Chassis, as seen from above; the new type of gear-box and the additional foot-brake on the second-motion-shaft are visible in this view.

Fig. 2.—View of the new 24-h.p. Fiat Engine from the inlet-valve side, showing the carburettor and throttle-valve.

by yokes, which facilitate their removal, and half compression cocks are now fitted into the cylinder heads. So far as the arrangement of the valves is concerned, the engines are identical with those of last year, while the igniters, and also the method of "timing," remain unaltered. The "timing" on the Fiat engines is automatic, being entirely controlled by a mechanical governor, which operates a rod fitted inside the hollow inlet-valve cam-shaft. This rod alters the position of the igniter cams relatively to the cam-shaft, and, since the gear-wheel driving the magneto is also mounted on this rod, the magneto is, therefore, kept in synchronism with the tappets.

A slight modification has been made in the throttle-valve, which is now horizontal, but the valve itself is still inter-connected with an auxiliary air-valve, and the engine is also under the control of a centrifugal governor which is connected with it by a rod that passes through the hollow exhaust-valve cam-shaft. The large centrifugal circulating pump is mounted on the side of the crank-chamber, and the water-pipes still retain the same directness and absence of sharp bends. The belt-driven lubricator on the dashboard, which feeds oil in measured doses down each oil pipe, is also retained in a somewhat modified form.

The most important change is in the clutch, which is now of the multiple-disc type—that formerly fitted being of the internal expanding variety. The component parts of the clutch are very clearly shown

in Fig. 4, and the clutch complete is also visible, in place on the chassis, in Fig. 5. It is exceedingly compact, and is enclosed in a cylindrical case, A, which is bolted to the boss of the large fly-wheel, an aluminium cover, A', being provided to retain oil and exclude dust. The driving discs fit freely on longitudinal keys which project from the inner face of the member, A, and the driven discs also fit freely on longitudinal key-ways which are cut in the outer surface of a member, B²—secured by the flange, B', to the driven shaft, B.

When in place, the driving discs and the driven discs are arranged alternately, and overlap one another, but they are normally prevented from "seizing" when the clutch is disengaged by the action of small leaf springs, A⁴, which separate them. These leaf springs are formed by notching the outer edge of the driving discs at four places on the circumference, and then bending back the small pieces which have been partially cut away. The positions of some of these springy separating pieces are clearly indicated in Fig. 4. The clutch is engaged by allowing the clutch-spring, C², to compress all the discs firmly together. The force of the clutch-spring operates through a cup-shaped member, C', which has a suitable diameter for operating upon the discs, and the clutch is disengaged in the usual way by a foot pedal, which is connected with the clutch-fork, C. A simple adjustment for the clutch-spring is provided by means of the nuts, C³.

Fig. 3.—The 1905 model 24-h.p. Fiat Engine, as seen from the exhaust-valve side, showing the circulating pump, the gear-wheels, and one of the governors.

A2

Fig. 4.—The Fiat Disc-Clutch, complete and in parts. In the lower illustration, two of the discs (driven, B³, and driving, A²) are shown separately, and the separating springs, A⁴—, which are notched out of the periphery of the latter—are clearly visible.

The other parts of the chassis have not undergone radical change, but the gear-box no longer has a three-point suspension. The shape of the gear-box is, moreover, somewhat modified, and the differential case, which is still in one piece with the main casting, is self contained. The change-speed-gear is similar to that of last year, and is modelled on the Mercedes pattern. Another resemblance to the Mercedes vehicle is to be found this year—the presence of a foot-brake on the second-motion-shaft, in addition to that on the countershaft. These two brakes are interconnected through a compensating device with the same foot-pedal, and both have water-cooled drums.

The countershaft brake is of the simple band variety, and is actuated by a toggle mechanism; the second-



Argumentum ad ampulam fractam.—The argument of the broken bottle was brought up with much effect by Sir C. Rasch in the House of Commons recently in regard to a question which he had asked of the President of the Local Government Board, as to when the Royal Commission on the working of the Motor Car Act would commence its “labours.” Mr. G. Balfour informed Sir C. Rasch that “steps were now being taken to appoint the Commission.” Sir C. Rasch further insisted that the matter was one which did not admit of delay, and asked Mr. Balfour if he were aware that broken bottles and other arguments of that sort were being used in East Anglia. It is a timely reminder on the part of Sir C. Rasch. The general view of many people is that the considerations put before the Commission will be all on one side. These people, we venture to think, are destined to some surprise. The motorists’ case is an extremely strong one, and Sir C. Rasch’s remark provides a mild foretaste of what it will be.

Fig. 5.—View of the 1905 model Fiat Chassis, showing the dash, the clutch, and the controlling levers and pedals.

motion-shaft brake is similar in principle, but is operated by an ingenious arrangement of cams. The hub-brakes are—as before—of the internal expanding type, and are supported, as formerly, on the large flat radius-rods which the Fiat Company were among the first to introduce into their vehicles, and have now become so very popular with many well-known makers. Notwithstanding the popularity of the Fiat cars in the past, the alterations which we have enumerated as having been embodied in this year’s models cannot but ensure an increased circle of users in the future, while the magnificent running of the competing cars in the Gordon-Bennett Race must in itself very greatly strengthen the confidence with which these vehicles have always been regarded in the automobile world.

THE service between Hythe and Lydd (Romsey Marsh), is proving an enormous convenience to those in the district. This may be realised from the fact that at present the journey by rail occupies between three and four hours, whilst the motor cars running direct complete the journey in a little over one hour.

It appears that the Hove authorities only permitted the Worthing Motor Omnibus Company to ply for hire between Worthing and Hove on the preposterous condition that 6*d.* should be the smallest fare charged. The Company is more reasonable in its view of fares, and the Watch Committee is now becoming more open-minded and is agreeing to allow this sum to be reduced to 3*d.* The Company is now proposing to extend its service to Pulborough, and licences for seven cars for this service were asked for. The Hove Watch Committee appears to be in favour of granting the licences.

THE 1905 DE DIETRICH CARS.—PART IV.

The Carburettor and Its Connections.

REFERRING TO Figs. 15 and 16, it will be gathered that the float-controlled needle-valve, which regulates the admission of petrol to the float-feed-chamber, A^1 , is arranged at the side, instead of in the centre, of that chamber. Above it, is the "agitator," A^2 , for flooding the carburettor if necessary, and, beneath it, is the removable plug, A^3 , that not only constitutes a seating for it, but also contains a filter. A very simple lever device connects the float with the needle-valve; the advantages of being able to remove the seating for cleaning purposes are considerable.

The spray-jet, A^4 , which projects up inside the mixing-chamber, J , is also arranged in a similarly convenient manner for easy removal. It is screwed up into position

normally kept nearly closed by a spring. An adjustable stop, J^4 , however, prevents the throttle-valve from closing completely, this being set so that the engine can continue to run slowly when doing no work. Connected to the outer end of the lever is a vertical rod, to which are fixed the three projecting pins, J^6 , each of these pins being engaged by one of the pivoted levers, J^7 (see Fig. 13). One of the levers, J^7 , is controlled by the hand-lever, K , above the steering-wheel, a second by the accelerator-pedal, K^2 , and the third by the clutch-pedal, L . The hand-lever, K , is connected direct by the lever, E^4 , which is visible in Fig. 13, but the arrangement of the clutch and accelerator-pedals can be best gathered by referring to Fig. 17. The accelerator-pedal, K^2 —like the hand-lever, K —tends to open the throttle-

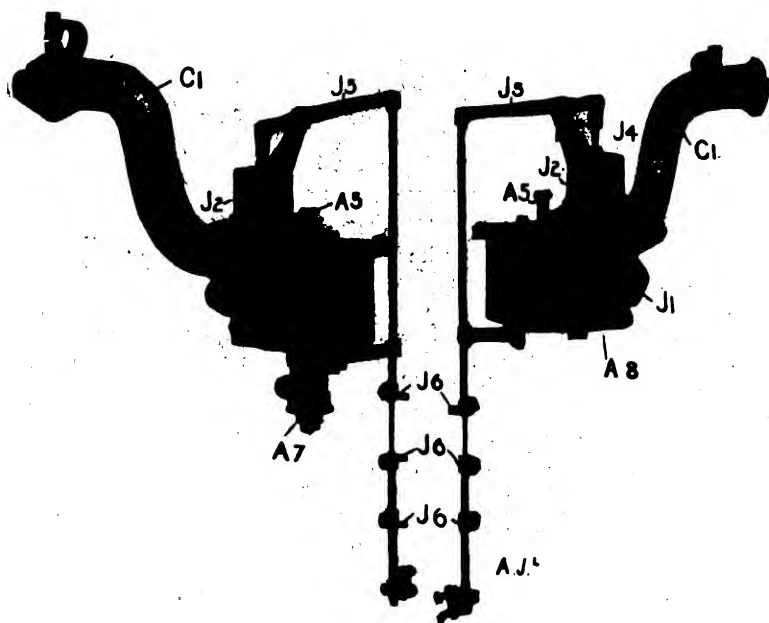


Fig. 15.—Two views of the De Dietrich Carburettor, with one of the induction-pipes (C^1) in place.

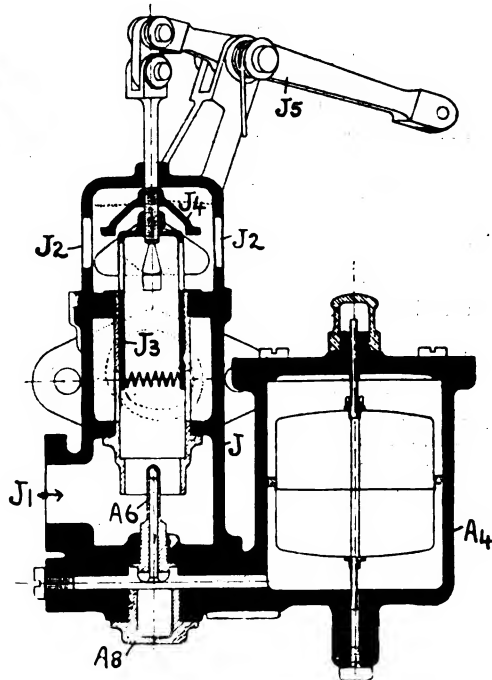


Fig. 16.—Sectional drawing showing the construction of the De Dietrich Carburettor.

from beneath, and there is a plug, A^3 , immediately beneath it.

Surrounding the upper portion of the jet, is a stationary sleeve which forms the outer member of the throttle-valve, this sleeve having large ports cut through its wall for the explosive mixture to find its way to the two induction-pipes, C^1 . The inner sliding-sleeve, J^3 , not only controls the area of these ports, but it also has ports at its upper ends, through which an auxiliary air supply can enter by way of the holes, J^2 . This arrangement produces two effects, for, in the first place, an approximately constant richness of mixture is maintained—owing to the relative shapes of the throttle and auxiliary-air ports—and, in the second place, an increased spraying effect results from the direct collision of the auxiliary air with the already formed explosive mixture.

The sliding valve-sleeve, J^3 , is controlled by the pivoted lever, J^5 , above the carburettor, the valves being

valve against the action of its spring, but the clutch-pedal, when depressed, has an opposite effect on the valve, if the valve happens at the time to be open. The accelerator mechanism is so designed that its action is superior to that of both the other controlling devices, and that the valve can therefore always be opened by it. In Fig. 17, it will be seen that this pedal, K^2 , is held in its normal position by the spring, K^3 , and that it is connected with its lever, J^7 , by the rod, K^4 ; unlike the clutch-pedal, it is mounted in the usual way.

The peculiar feature about the clutch-pedal is that it is made in two parts, L and L^2 , the former, which carries the footplate, being pivoted to the latter part. Acting against a comparatively weak spring, the portion, L , rocks about its fulcrum before it begins to move the portion, L^2 , and during this time it causes the small shaft, K^5 , to rock about its axis, because the shaft, K^5 , carries the small roller, K^6 , on a lever-arm, and this roller presses up against the lower end of the portion, L .

Fig. 17.—The De Dietrich main clutch. Three views demonstrating the facility with which the leather-faced cone can be removed from place in the chassis when necessary, and another view of the clutch-cone (and its shaft) removed from the chassis, and shown separately.

The shaft, K^5 , is connected by the rod, K^6 , with one of the levers, J^7 , to which we have already referred, and, although the spring, K^7 , normally prevents the rod, K^6 , from closing the throttle-valve, yet the valve is in this way caused to close when the clutch-pedal, L , is depressed.

In Fig. 14, is seen the auxiliary fuel-tank, A^1 , that enables the carburettor to be fed by gravity when there is no pressure in the main tank. Normally, the petrol is forced up into this tank, A^1 , on its way to the engine, and passes through the cock, A^2 . But the pipe-connection leading into the tank, A^1 , projects up a considerable distance within it, and therefore the tendency is for the auxiliary tank to be kept full. The cock, A^3 , allows air to be admitted when the tank is in use; and enables the air to be let out after use.

The Main Clutch.

The inner member of the main clutch—the leather-faced cone, L^3 —is carried by two driving pins, L^7 , that project from the clutch-shaft, L^6 . These pins allow the clutch-cone to slide longitudinally, although the shaft, L^6 —which is hollow—does not slide with it. By this means two ball bearings can be introduced between the hollow shaft, L^6 , and the projecting end of the crank-shaft, F^3 , on which it rides. The clutch-shaft, L^6 , is

connected with the change-speed-gear by a propeller-shaft, L^9 , that has universal joints at both ends, and it is thus only necessary to remove one of the pins from the forward joint to completely disconnect the clutch-cone. In order to enable it to be actually removed, the forging, L^4 —which engages its thrust collar—has forks formed at its ends, enabling this forging to be hinged up out of the way, as shown in the lower view in Fig. 17. The forging, L^4 , is pivoted to the two lever-arms, I^3 , which in turn are secured to the clutch-pedal, and are normally pressed forward by the stationary clutch-spring, L^1 . The forging, L^4 , is prevented from jumping out of place, when in use, by a stirrup, which is visible in our illustrations. In Fig. 17 the clutch-cone, L^3 , fitted with the forging, L^4 , is shown separately, while to the right of it, is the hollow shaft, L^6 , and a portion, L^8 , of the universal joint.

(To be concluded.)



THE Deaf and Dumb Association, who have been holding a meeting at Bowness, are evidently not without a certain vein of humour, as they put placards up in the district to the following effect :—

“Motor Cars and Cyclists Beware !
A Deaf and Dumb Congress is being held this week.”

DUST TRIALS NEAR LUTON.

BECAUSE the real solution to the dust problem is to be looked for in the construction of proper roads, it does not follow that motorists should remain inactive while patiently waiting for that most desirable millennium. There is no doubt that there are dusty cars—and dusty cars, and such being the case it is obviously desirable that the causes of these differences should be investigated as far as possible. To this end some trials were recently carried out by the British Automobile Commercial Syndicate, who claim that they have, in a make of car for which they act in England as agents—to wit the Spyker—a vehicle which is an immense advance towards the much to be desired “dustless” article. The results

well shown by our series of photographs, which demonstrate very clearly that Mr. Wilson's car raised very much less dust than did the other vehicles. In addition to these tests we were able, through the courtesy of Mr. Wilson, to observe the behaviour of the car during the run to and from the selected road, and although where the surface was really dusty it certainly raised dust, such dust-clouds were always translucent, and never exceeded a few feet in height from the ground.

An explanation of this comparative immunity can, in this instance, only be looked for in the general lines of the car, and here the reasons are not far to seek. The Spyker car is of the live-axle type, and has a smooth metal

DUST TRIALS NEAR LUTON.—Views from the front and from behind of Mr. Wilson's “dustless” Spyker Car going over the course. Distant objects are, it will be noticed, clearly visible through the dust, whereas in the other photographs they are quite obliterated.

of these tests will doubtless be welcomed by motorists generally, especially as they have waited so long for the results of the more comprehensive experiments which have been (and, we assume, still are being) conducted by the A.C.G.B.I.

No special device of any description was fitted to the 15-h.p. Spyker test car, which was, in fact, placed at the disposal of the B.A.C.S. by a private owner, Mr. Wilson, who had first drawn their attention to its dustless properties. The tests were carried out over a very dusty stretch of road near Luton, and consisted in comparing the dust clouds raised by various cars of different makes as they passed over the course. The results are

sheath placed under the engine and gear-box. The sheath itself is a reasonable height from the ground, but behind the shield there is practically no other obstruction; even the exhaust-box is arranged longitudinally, and in such a manner that the exhaust gases cannot contribute towards raising the dust. With such an open under-build, no eddies are formed, and the dust is not caught up and swirled aloft as it generally is with cars which have bulky projections, such as tool boxes and silencers, depending from the rear part of the chassis.

The effect of the tyres on dust is also an important consideration, but although the tyres lift a large quantity of dust from the surface of the ground, they do not of

DUST TRIALS NEAR LUTON.—Various cars of different makes being driven over the course. The dust-clouds raised by these cars should be compared with that raised by the "dustless" car shown in our other illustration.

themselves tend to disperse it into the atmosphere. During this trial, the Spyker car used metal-studded non-skid bands, and it was noticeable that the dust actually raised by them was less than that raised by the smooth rubber tyres used on some of the other vehicles.

Comparative dustlessness is naturally the result of the influence of several factors, but it would be a distinctly progressive step if all cars were made no more objectionable in this respect than is the particular car in question.



THE humours of police court proceedings were forcibly emphasised recently at Great Marlborough Street Police Court, when Enigmarelle, the mechanical triumph of the Hippodrome, was summoned for creating an obstruction by proceeding through the streets of London in a motor car, owing to the fact that a large number of people, attracted by the spectacle, ran after him. Had the car containing Enigmarelle remained stationary, we could understand the obstruction; but how even Mr. Kennedy could have brought himself to inflicting a fine on Enigmarelle's supporters of 40s. and costs under the circumstances, passes comprehension. Even while outside the police court to which he had been summoned, Enigmarelle was ordered by the police to "move on," and, no doubt, had he failed immediately to do so, he would have been again summoned for further obstruction caused by attending in response to the first summons. It is obvious that the police can have you every time when they mean to. In order to escape from the crowd and subsequent fines, Enigmarelle had to run his car into Messrs. Jarrott and Letts's garage, and his numerous admirers had to content themselves with squeezing their noses against the substantial plate-glass windows. Next week we shall, no doubt, hear that Messrs. Jarrott and Letts have been summoned for creating an obstruction owing to the fact

that "certain evil-disposed persons did congregate in front of their premises, and with malice prepense persistently stare through their plate-glass windows, to the annoyance and discomfort of His Majesty's lieges."

WE have referred on more than one occasion to the successful introduction of the automobile, not only into the ancient presence of the Sphinx itself, but also to its adaptation to traversing even the desert sands by which that strangest of countries, Egypt, is surrounded. The introduction of the automobile is only an evidence—the crowning evidence, perhaps—of the splendid industrial progress of modern Egypt. How universal and wide-reaching this has been since the British occupation is admirably shown by the *Financial News* Egyptian Supplement, which has been issued for the express purpose of proving what has been effected during the last decade or so, and is an admirable testimonial to the enterprise of our financial contemporary. The supplement is well illustrated throughout, and most firms who note the view of the old stern-wheeler steamboat will probably speculate on the fine field that the Nile would afford for motor-boating, and probably form a resolution that the invasion of the Land of the Pharaohs by automobilism shall not be confined to the *terra-firma* only.

AERONAUTICS.

ACCORDING to the old German and Swiss legend, the *Bergeister* were in the habit of invariably attempting to overwhelm the adventurous mountaineer who had the hardihood to attempt to climb previously unscaled peaks, by sending upon him at a critical moment thunderstorms, whirlwinds, and various kinds of avalanches. Once a peak had been scaled the *Bergeister* usually retired in dudgeon, and subsequent adventurers could essay the same road with comparative safety. It must be admitted that similar strange phenomena have been observed at every step in man's progress towards the conquest of natural forces. The attempts made upon the empire of the air provide plenty of instances of the kind, and two of the most painful of them have been illustrated by the history of the Lebaudy airship. It was just as Lebaudy No. 1 had completed her tour from Moisson to Paris, and from Paris to Challais Meudon, and was actually alighting on the ground, that she was caught by a squall, hurled against a tree, and broken up. Similar destruction overwhelmed the splendid airship at the end of her recent tour. She had made a record journey largely against the wind from Moisson to the camp of Chalons, encountering almost a storm during the latter stages of the tour, which, however, she successfully surmounted, and arrived in triumph in Chalons Camp, where she had hardly been moored when the storm developed into a hurricane that even threw down telegraph poles. Moored in the open, no conceivable airship could stand a tempest of this kind, and it is certainly most singular that tempests of such ferocity are decidedly rare in the middle of France. The cables were pulled out of the hands of the thirty soldiers who held them and the airship was driven against some trees, causing the gas vessel to burst. Fortunately, the occupants of the car were within a few feet of the ground, and escaped practically uninjured. It is too soon to be certain whether the airship can or cannot be repaired, but in any case the designers and owners of the great machine—by far the most successful aeronautical contrivance, as our readers are aware, of modern times—may console themselves by the reflection that, like Gustavus Adolphus, Lebaudy II. had won her battle when she met her end.

The irritating part about the situation is that it is quite possible the airship might have escaped injury had the hurricane come up while she was *en route*, as she might then have been able to run before it, and beat back when the violence of the storm was exhausted.

MESSRS. LEBAUDY and their collaborators have shown themselves such enthusiasts in the cause of aerial navigation that we feel confident that they will not be deterred by this very untoward and incalculable misfortune at the very moment of victory from prosecuting their experiments and researches further. We feel sure that before long a Lebaudy No. 3 will rise from the

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THE Bench at Odiham may lay claim to the proud distinction of, on Tuesday last, having had twenty-two motorists, including a "belted earl," several knights and baronets, justices of the peace, and Sir Thomas Lipton arraigned before them, and fining the twenty-two sums which altogether amounted to £186 19s. One of the unfortunates was a foreign driver in the employment of Mrs. Ogden Mills, who had only been three days in the country, and he was fined £21 18s., including costs, for

ashes or remains of Lebaudy No. 2. But the important question is whether it is really fair that private individuals, however wealthy and enthusiastic, should be allowed to bear the whole brunt of the enormous expense involved in such experiments. The Lebaudy airship has fully demonstrated what it can do. A Government representative, the head of its Aeronautical Department, or his chief assistant were on board all the time, and must report that no airship before has ever accomplished so much. It is certainly time that the French Government and the national exchequer should come to the assistance of the plucky and enthusiastic experimenters. Indeed, the conquest of the air is not a merely national affair, and it would only be reasonable for the whole civilised world to assist in providing further sinews of war for what has already proved the most victorious campaign ever waged against the powers of the atmosphere.

It must not be forgotten that the chief contributing cause of the destruction was the absence of shelter at the Chalons Camp. An airship, however successful, which cannot rely upon an adequate shelter in which to take refuge at the end of its voyage, is like a vessel cruising round a perpetually rocky coast, destitute of a single harbour, and attempting to moor itself with cables to the sides of the cliffs. A vessel in such a position is obviously at the mercy of the first storm that gets up. The position of the Lebaudy on its tour was precisely similar. The only security it could obtain was that provided by its guide-ropes, and these are hopelessly inadequate in the case of a real storm. Even if the guide-ropes hold, the air pressure is bound to endanger the envelope which, unlike that of an ordinary spherical balloon, is already under a very considerable pressure. For navigable airships to be able to undertake extended tours of this kind without frequently running the risk of destruction, the erection of adequate sheds or shelters of some kind for housing them at the various points they propose to land, is a *sine qua non*, and this, it is plain, is an undertaking of national, if not international, magnitude.

THE Barton airship, which has for so long been lying inactive at the Alexandra Palace, took the air again on Friday last, and made a short excursion on the guide rope. Dr. Barton and Mr. F. L. Lawson were both on board of her, and it is estimated that when the propellers were working properly she developed a forward speed of from 15 to 20 miles an hour. The vessel also appeared to obey the rudder most satisfactorily. There was a moment during the experiments when there seemed to be some danger of the big airship crashing into a tree, but the huge rudder was put well over, and had the effect of deflecting the airship away from this threatened danger. A "free" ascent may possibly be attempted to-day (Saturday).

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reckless driving, and another £10 for refusing to stop when called upon. When he returns to his native country he will doubtless have a French, German, or Belgian equivalent for the song "What a Happy Land is England!" and perhaps he will sing it to the tune of "Rule Britannia." Under the circumstances we think Odiham might appropriately change its name to Odi-automobile, for certainly the hatred of the automobile reigns supreme upon that particular Bench.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

TOURIST CARS AND RACING.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I have read with very great pleasure the excellent leading articles which have appeared in the current issue of your Journal concerning the racing of touring cars. The attitude taken by you very strongly accords with the views that I have held on this subject for some time, and it may therefore not be without interest to you and your readers if I give you some extracts from a letter which I wrote to the Committee of the Automobile Club on April 17th last, immediately after my retirement from that Committee. Amongst the questions put forward in that letter were the following:—

2. Is it at all probable that systematic disregard of the 20 miles per hour limit may lead to the imposition of restrictions.

Note.—The French Government some time ago prevented the use of high-speed cars in France by a special device.

3. Is there any fear that there may be imposed further restrictions of the nature above indicated or of a character calculated to damage automobile interests in the United Kingdom?

4. Does the Automobile Club wish to be regarded by the legislature and the public as a body which discourages the breaking of the law as passed by Parliament, or does the Club when the reconsideration of the Motor Act is before Parliament wish to be regarded as a body which has "winked" at the systematic disregard of the law?

5. Will the Club admit to races for touring cars held under its rules, four-seated cars capable of speeds of 60 miles an hour and upwards?

Note.—In the race for touring cars held at Bexhill under the club rules last autumn, 60-h.p. Mercedes were raced as touring cars, and in the forthcoming reliability trials of the Scottish Automobile Club the definition of a touring car will admit cars which can be driven on the flat at quite 60 miles an hour.

6. What excuse is there for doing so? Can it be seriously supposed that a man who spends £1,000 in buying a 60-h.p. car, with light touring body for four persons, has no intention of breaking the law?

7. Is it politic for a club which professes to uphold the law of the land to include or permit others to include in races for touring cars, high-powered automobiles, capable of travelling at 60 miles an hour and upwards?

8. Is it wise that speed results of touring cars should be published showing that they are capable of speeds three times as fast as that allowed by the law?

9. Would not the suppression of the publication of the speeds made point to the fact that the club is admitting as touring cars cars which are capable of such speeds that it is inadvisable to publish them?

10. Would not the club, by admitting such cars to be tourist cars, be forging weapons which may be used with great effect against automobile interests when the law as to motor cars is reconsidered by Parliament?

11. Are not short distance speed meetings now unnecessary in connection with the encouragement of the use of motor cars? Do they perform any useful service to the automobile movement? Do they not tend to emphasise the importance of speed and thus interfere with the efforts of the club to emphasise the importance of reliability?

Is it not the duty of the club to avoid and prohibit any action which may tend to damage the movement as a whole?

12. If speed meetings must be held would it not be wise only to admit as Tourist Car cars in which the horse-power is in such relation to the weight as may enable the club, with a good conscience, to state that they may be purchased and used by a man who *bona fide* does not intend to exceed (or does not in any case intend to seriously exceed) the legal limit of speed, and to relegate all other cars to the racing classes.

13. For instance, might it not be laid down as a rule governing all competitions in the Kingdom that no car shall be admitted into a race for touring cars which shall have cylinder capacity exceeding the capacity of an engine having four cylinders of 4 in. by 4 in. Might not all other cars be put into the racing section, which could again be sub-divided according to the cylinder capacity, and the cars could be run in racing trim, so that there would be no impression left on the minds of the public that they are intended to be used as touring cars.

14. Generally speaking, should not the attitude of the club towards high-speed touring cars be "We cannot prevent manufac-

turers making them nor purchasers buying them, but we will not allow them to be run as touring cars in any competition in this Kingdom"?

In conclusion, Mr. Editor, I think that the whole danger of the position is that the members of the Committee of the Automobile Club, who rejected the proposal of the Public Policy Committee of the Club that the Club should not countenance the racing of touring cars (except, of course, in the Race for the Tourist Cup, in which the speed is designedly within reasonable limits), do not realise what may take place in Parliament. They appear to feel secure because there are a certain number of Members of Parliament who drive motor cars. They do not, I fear, realise that the feeling against motor cars is, at the present time, stronger than it ever has been in the history of the movement, and that Members of Parliament, whether they are motor owners or not, are, generally speaking, servants of their constituents, and that, with a General Election looming near at hand, very few, if any, Members of Parliament can afford to disregard the feelings of their constituents, especially when they are agitated on such a vexed question as the motor nuisance.

Yours faithfully,

CLAUDE JOHNSON.

MOTORISTS AND THE LAW.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Under the heading "Jumping on a Wife," it was stated in a recent issue of the *Standard* that a man who objected to his consort attending a tea party, at the invitation of the Vicar, violently assaulted her on her return. The woman said that her husband struck her a number of blows, threw her on the ground, kicked her, and jumped on her. Their little daughter ran for the police, and the woman rushed into the street, where she was found in an unconscious condition. The police Magistrate who tried the case said he would take into consideration the good character the prisoner had received from his employers, so he fined him 20s., giving him seven days in which to pay the fine.

A short time since, a motorist was haled before a Bench of Magistrates in Sussex for slightly exceeding the speed limit over a measured furlong. The police (who were very fair) admitted that the road was straight, and that neither man, woman, child, nor animal was in sight. It was the motorist's first offence. He was fined £10 and costs.

Moral.—If you *must* break the law, trample on your wife. It is ten times cheaper than to exceed (however slightly) the speed limit on a deserted road, and there is the additional advantage that you may be given time in which to pay.

I am, Sir, your obedient servant,

Roehampton, July 14.

W. J. BOSWORTH (Colonel).

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—On Wednesday, the 12th instant, I attended the Mortlake Police Court to answer a summons for driving my car at an alleged speed of twenty-six miles an hour between Hammersmith Bridge and Barnes Common—a speed which I absolutely denied in Court, as at the time I was stopped I had just slowed down to go through the dust of a passing car. Danger to the public was not part of the charge, the road being practically deserted at the time. In spite of this, however, I was fined £6 and 13s. 6d. costs. Just before my case a carter was convicted of wantonly illtreating a horse, and was proved to have thrashed the poor beast unmercifully. He was found guilty, and was fined 20s.

I consider this a gross injustice, and one that is liable to bring the magistrates of England into contempt, for here am I doing no harm to anyone fined £6 and 13s. 6d. costs, and a blackguardly carter, who illtreats a poor dumb animal until he almost kills it, is let off with a paltry 20s.

Such cases as these are of daily occurrence, and prove clearly that such societies as the recently-formed Automobile Association are badly needed, and that no time should be lost in forming a strong combination to assist motorists in obtaining the justice they deserve and so seldom obtain.

Yours faithfully,

COLIN DEFRIES.

Northrepps House, Overstrand, Cromer,
July 15th.

P.S.—I draw the attention of the public to these facts in some o

the daily papers this week, and amongst the many letters I have received is the following:—

"SIR,—I notice your letter in to-day's paper. I much regret you are fined £6 and 13s. 6d. costs, instead of being sent to gaol with a month's hard labour. I assure you that I shall do my utmost to get all road hogs convicted without the option of a fine.

"Yours faithfully,

"A LOVER OF JUSTICE."

This prejudiced idiot has not even got sufficient courage of his convictions to send his address, but it shows the class of people we have to deal with at present, and clearly demonstrates that we must fight them as hard as we can.

INDUCTION COILS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—We have been struck with the large number of induction coils of all sorts of makes which have been sent to us during this season for repair, and which have the curious symptom that the insulation is to a great extent destroyed, and the paraffin wax with which the coil has been packed is melted, and in many cases has bubbled out in various places on the coil, and made it into a messy and unworkable condition.

These symptoms are quite peculiar to this season, and have never occurred before, at least not in anything like the same number of cases. We have therefore been carefully tracing the cause, and we find whereas it used to be the custom to fit motor vehicles with connecting plugs, and it was usual when it was desired to permanently stop the motor, to remove the connecting plug, but now the custom is in many cases, especially in the provinces, to stop the motor by cutting off the gas, and not to trouble to switch off the current.

The result of this is, if the contact-breaker happens to be in touch when the motor is stopped, as of course very often does occur, the current is left to continuously pour through the coil without any breaks, the same as occur when the motor is running, and then, as time goes on, such a strain on the coil is caused that no induction coil used for ignition purposes could be reasonably expected to stand it, and the coil gets so heated that those bubbling-up symptoms above described occur, and the coil is temporarily rendered useless.

It is, of course, hardly to our interest to reduce the number of repairs, and thus curtail the turnover in our repair department, but we feel that it is not to the general interest of the automobile trade that private users of cars should be put to the inconvenience and expense of having to wait for their coils over some period whilst they are being repaired, when that trouble could be so easily avoided by the very simple precaution of switching off the current after the motor is stopped, and previous to putting the car away for the day.

We trust, therefore, you will see your way to give publicity to this rather important point, because we find numbers of people who are having trouble with their coils through this sole cause, which is very greatly on the increase.

Thanking you in anticipation,

Yours faithfully,

For the United Motor Industries, Limited,
G. H. SMITH.

GORDON-BENNETT RACE AND TYRES.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—We have had an opportunity, on the return of our Mr. Paul Brodtmann from Hanover, to learn some very interesting facts in connection with the recent Gordon-Bennett Race. Mr. Brodtmann discussed this matter in detail with Mr. Tischbein, specially in reference to the assertion that the German cars did not show up so well this year, and the reason was given that this must be attributed, in the first place, to such cars having been fitted with tyres which proved too light for a course of this nature. As you are already aware, there exists on this course no less than 700 sharp curves, each necessitating a strong application of the brake. The surface of the road is exceedingly hard, and composed, so far as could be judged, of a granite-like stone. Consequent upon the continual traffic over the course, the surface of the streets was, so to speak, "torn up," which is naturally a disadvantage to pneumatic tyres, and it was a mistake that our drivers could not previously cover the course four times at top speed. The reason of this mistake was apparent, as we should then have had an opportunity of ascertaining the nature of the road surface and the effect on our tyres, which advantage the French had in their eliminating trials. Our drivers informed us that our touring tyres, which we also supply for use in racing events, would hold out for about three rounds, and consequently we only decided to change the tyres after the completion of the second round. In the actual race itself this proved insufficient.

The Mercedes cars were very fast, and kept close up, but the tyres were too light for such conditions. It was not due to any indiscretion in the choice of tyres, as the fact that everyone was deceived as to the strength of the tyres to be used in such an event is amply proved by the results of the French Eliminating Trials. Practically every driver had from eight to ten punctures, and many finished on the rims. Each driver had stops of considerable length consequent upon the changing of the tyres.

The result was that the French and Italian cars were fitted with very heavy tyres for the actual race, which, nevertheless, did not prevent the continual changing. It cannot, therefore, with truth be asserted that Continental tyres showed any actual defects, and it is also incorrect to say that Jenatz during the first round had eleven punctures. As already said, owing to the high speed at which the cars travelled, and owing to the condition of the roads, the Continental tyres were, after one round, worn down to the canvas, the wearing being to a great extent influenced by the continual application of the brakes, which was necessary over a course of this description. The following will prove what an effect the ride had upon the tyres:—

At our dépôt near Moreno, we erected a low wooden platform to render the fitting of the tyres somewhat easier, and immediately after the tyres on the first cars had been changed, Mr. Tischbein noticed a strong smell of burnt rubber, which led him to at first believe that the rubber tyres had come into contact with some benzine, and had caught fire from one of the cigars of the many spectators present. Only after the departure of the car was the exact impression of the tyre in the wood noticed, so exact, that on closer examination the small grooves in the rubber and the wooden surface at that moment must have been so strong as to have generated a heat of far more than 100 degs. Celsius.

Mr. Brodtmann put the question as to whether such circumstances could not have been avoided, and Mr. Tischbein replied that this could certainly have been done had we known what we have now gained by experience. It was impossible for either us or the Mercedes people to foresee such an event.

Jenatz and Baron de Caters were, practically speaking, the only two who covered the course correctly. Both were exceedingly pleased with the Mercedes cars and the behaviour of the Continental tyres.

The cars were very fast and ran very evenly, and both these drivers were under the impression that the Continental tyres would easily last out three rounds. If we had had the experience of an eliminating trial to work upon, the same as the French had, we should certainly have made other provisions. We should above all other things have fitted the cars with heavier tyres.

We would only like to add that no Continental tyres burst, and that the statements in regard to tyre defects which have recently appeared in the Press, do not at all coincide with facts.

With the exception of Baron de Caters, who had two nail punctures, not a single Mercedes car had reason to complain of tyre defects, only the continual changing of the tyres cost the Mercedes cars valuable time.

It has been further stated that the fitting of the tyres on the French and Italian cars was completed in much shorter time than by us, but the actual time for fitting a complete set of 4 tyres occupied about 7 minutes, an undertaking which any well-informed man will agree is highly satisfactory.—Yours faithfully,

THE CONTINENTAL TYRE AND RUBBER COMPANY (GREAT BRITAIN), LIMITED.

July 14th.

G. JUNG, Secretary.



Not content with the wholesale tramification of London, the organisation of a service of Thames steamers (more or less effective), and arranging plans for the construction of a "lordly pleasure house" for their own delectation, the London County Council now propose to enter the arena of journalism, and have, we learn, in contemplation the publication of what purports to be a "London County Council Gazette." The ludicrous statement is put forward by the supporters of this scheme that the cost will only amount to £24 per week. We remember another official publication which the official statement of figures and accounts has declared to cost nothing at all, though others have a strong opinion that it costs the motor car industry between £5,000 and £6,000 annually. We know these costless journalistic undertakings!

THE TOURIST TROPHY, AND ITS VALUE TO CAR OWNERS.—PART II.

NATURALLY the makers will have to cut everything rather fine in order to obtain the best results under the definite conditions specifically stated in the rules, but it is quite possible that any allowance that may be made for inferior roads, muddy surface or hilly routes, will favour other cars that comply less exactly with that specification. Luck, however, is bound to enter very largely into any such competitions, and, after all, the cars will only have to face what any touring car has at times to contend with, while, obviously, even those competitors who do not actually win, but make a fine performance, will benefit from the confidence they inspire in the public. As at present decided by the A.C.G.B.I., the fuel allowance is to be taken on the basis of one gallon for each 25 miles of average dry roads, and the prevailing idea on which this has been fixed is that it will prevent an average speed of more than 25 miles an hour from being maintained.

How to Restrict Weight.

Since this is a question which affects "speed" as well as "touring car requirements," it is a crucial one, and it has to be considered from both these points of view. It arises because there are two or three different ways in which a weight limit could be imposed:—by specifying (1) the weight of the complete car, (2) the weight of body with its useful load, and (3) the weight of the chassis as well as of the "load," concerning which methods there are many sound reasons for discarding the first, adopting the second, and regarding the last as a somewhat moot point, as we now proceed to show.

Although the specification of a total weight, combined with the fuel allowance, would serve to restrict "speed," the tendency would certainly not be beneficial as regards "touring car conditions," since every endeavour would be made to utilise the whole permitted weight as a part of the chassis and various totally uncommercial auxiliary devices would probably be employed with the object of attaining higher average speeds. Even though anything that was obviously a freak might be barred at the discretion of the organizers, it would be extremely difficult to draw any hard and fast line without erring on one side or the other. But, perhaps, the even more important arguments that can be urged against this possible method are more of a negative nature, and will, therefore, emerge with greater clearness from a consideration of the alternative proposals.

By fixing a definite weight for the body with its passengers (or equivalent load), it is obvious that a very important "touring-car requirement" would be ensured, while at the same time the adoption of this restriction would have the desired effect upon "speed." The weight of the "load" would demand a proper degree of strength in the chassis, and could be made, by suitable stipulations, to impose upon it the same strains—preferably intensified—as those encountered in ordinary working. There is, moreover, no direct incentive to the production of freaks, provided that reasonable provisions are made against them in the rules.

The real point at issue, however, is as to whether it is necessary or advisable to also impose any restrictions—maximum or minimum—on the weight of the chassis, and it is here that opinions evidently differ considerably. At first sight, everyone is naturally opposed to this on

general lines, and would like to see all its supposed merits obtained in some way that would at the same time allow the manufacturers greater latitude for useful development.

It is felt that lightness, *per se*, is a desirable feature, provided that it is secured without sacrifice of strength or of durability, and that, consequently, any make of vehicle which weighs less, in consequence of better design, or the use of superior materials, ought to benefit accordingly in the race. In any case, it is necessary that "strength" and "durability" should be actually and fully tested in the race itself (a point that is separately dealt with later), so that it is apparently unnecessary and even inadvisable, to specify any weight for the chassis. On the other hand, however, there are certain contingencies which it is difficult to guard against in any other manner, the chief of these being that a maker might, if he cared to entirely disregard cost of manufacture, build an extremely light but unreasonably expensive chassis, which would be strong enough and durable enough for its work. It is, of course, decidedly unwise to encourage one form of construction for the race, and another for the buying public, and it is conceivable that such a result might occur in this case.

The only other contingency to which we need refer is less important, because it is not only more easily dealt with by disqualification, but because it is unlikely that the motoring public would be deceived by it. It is, that the race might possibly be won by the employment of some complicated—and really valueless—auxiliary mechanism that would enable the engine to work continuously at its best speed and best load, in spite of the extra weight involved by it. From these points of view, therefore, it is probably advisable, on the whole, to impose a minimum weight, for the one reason, and a maximum weight, for the other reason, but it cannot be too clearly borne in mind why a chassis weight is specified at all, and that, whatever the selected minimum and the maximum limits may be, they may quite possibly require frequent revision as time goes on, to render them applicable to the then-prevailing practice at the moment.

The weight limits for this year's race have been fixed at 950 lbs. for the body (with its live and dead load), and at 1,300 lbs. (minimum), and 1,600 lbs. (maximum) for the chassis.

Other Necessary Restrictions.

So far, we have chiefly considered in any detail what are really the fundamental restrictions, and have carefully refrained from anything more than very brief reference to such subsidiary limitations as it may be necessary to impose on competing cars. For the most part, these minor stipulations, which now concern us, have been adequately dealt with in the rules already issued by the Automobile Club, but there are certain respects in which we think those rules might be very greatly improved, and there are some contingences against which no provision has as yet been made. Those which are apparently required in order to prevent other than *bona fide* touring cars from taking part in the race, should be specially directed to ensure:—(1) roominess and comfort of the body, (2) strength of the

chassis itself, (3) reliability and durability of the entire car, and (4) silence; they should, moreover, render it impossible for any "freak" cars to compete. In most instances, it is possible—and it is then unquestionably preferable—to meet the case by means of special rules, specifically dealing with the points at issue, but in others, disqualification at the discretion of the officials is apparently the only open course.

To Ensure Roomy Bodies.

Primarily the reason why minimum dimensions should be specified for the wheel-base, the track, the body and the seats, as also for the arrangement of the seats and the provisions of mud-guards, is that otherwise special types of car might be devised, or unfinished cars be presented, with a view of reducing "windage" or of evading the spirit of the rules in some other way. That it is necessary to impose such limits is hardly open to question, though doubtless there is a risk that some good makes of car will be excluded, unless care is taken to see that the dimensions chosen will give a fair amount of latitude. As the rules stand at present, the track (4 ft.) and the width of frame (2 ft. 6 ins.) are perhaps rather too closely restricted, but otherwise the figures that are already selected call for no comment. Although it may be urged that 7 ft. 6 ins. is nowadays very short for the wheel-base of most touring cars, yet it by no means follows that a manufacturer would suffer by exceeding this figure, and it may at the same time be pointed out that most makers already lay themselves out to build cars of different lengths.

To Ensure Strength of Chassis.

One very important matter which does not at present seem to have received attention is that some stipulations should be incorporated by which the strength of the chassis itself would be subjected to a sufficiently severe test. It is a question which in reality affects the body, for there is no doubt but that the body of an ordinary car very materially stiffens the frame, and that, for the race, a specially-designed body could be made to compensate for an unduly weak frame. It would not matter, perhaps, if the builders always supplied such cars complete, but often the chassis is alone supplied, and an ordinary body fitted by another firm. A further reason why, in the Tourist Trophy, the body should not be allowed to form a part of the frame, is that the race only lasts over a very short period, and that therefore the test imposed during that time should be exceptionally severe. There is much consequently to be said for the suggestion that all the bodies used in the race should be constructed in a special manner, being divided, say, into four parts—cut down the centre longitudinally and transversely—and having each part fixed to one member only of the frame; the body would then really consist of four independent seats, two in front and two behind. To ensure a proper distribution of the load, the weight on each portion would also have to be specified.

To Ensure Reliability and Durability.

The point to which we now come is, in our opinion, deserving of the very greatest attention, not only because it is so desirable that "reliability" and "durability" should be thoroughly proved by the race, but also because everything that is feasible should be done to induce the public to actually witness the event. In the first place, it is evident that the distance (150 to 250 miles) now contemplated by the organisers is totally inadequate

for the purpose of really testing the cars, for it hardly gives sufficient time for new vehicles to settle down into working form, or for inherent weaknesses to make their presence apparent. From the other point of view, moreover, it is certain that comparatively few members of the general public will take the trouble to travel far in order to watch a one-day race, particularly when there can be no well-sustained excitement throughout the day, and they will be unable to form a personal opinion concerning the chances of any competitor before the race is actually in progress. For both these reasons, therefore, it might certainly be advisable to prolong the race over at least two, if not three, days, on each subsequent day restarting all competitors (who had not retired through breakdown) in such a way that they would commence running in exactly the same positions that they had previously left off. For instance, the winner of the first day would start first on the following morning, the others who had completed the whole distance would be despatched at intervals of time equivalent to the lateness of their arrival, and those whose fuel supply had given out would have to start from where they stopped (or from the previous "control") at a time to be calculated for the uncompleted portion of the course (from the average individual speeds during the day), and from the relative time of their arrival in comparison with the arrival time of the winner at that spot. By this means the public, as well as the drivers, would be able to form an excellent idea of the chances of every competitor from the information that would be available each night, and this would not only give the spectators an extremely intelligent interest in affairs, but would go far to eliminate the undesirable "luck factor" from the race. It is hardly probable that the manufacturers would object to this proposal on the score of expense, for, after all, the additional expenditure involved would be quite trifling in comparison with the whole outlay involved, and it is quite certain that the entire industry would benefit enormously if a national event of this kind could be made a thorough success.

One more suggestion might also be made, with a view of still further testing the merits of the competing cars, this to a certain extent hanging upon the point with which we have just dealt. It is that different drivers should be required to handle the cars each day, in order, as far as possible, to render the race a trial of touring cars rather than a driving competition. It may be that such a course would be found inconvenient in practice, and that objections would be raised against it by those in the trade; we therefore merely bring the matter up for consideration, and do not lay any great stress upon the advisability of adopting it.

To ensure "Silence."

Unfortunately, "silence" is one of the very few "good points" which is actually put at a discount by the proposed rules, and, indeed, would be by any racing rules. It is especially regrettable that this should be so, because, on the one hand, it would not do to allow the cars to run without exhaust-boxes of any kind, and yet, on the other hand, it is virtually impossible to specify any particular degree of noise. Apparently, therefore, the only course open is for the organisers to reserve to themselves the right to disqualify unreasonably noisy cars at their discretion, and to rely upon the public and the press for making known the merits or demerits of any competing car that is conspicuous either for its quietness or its noisiness.

(To be concluded.)

RACES, RECORDS, AND TRIALS.

BRIGHTON MOTOR WEEK.

UNDER the organisation of the A.C.G.B.I., the largest race meeting of its kind was held during the latter half of this week at Brighton. No fewer than 375 entries had been received for the 23 different events which started on Wednesday of this week, the programme concluding to-day (Saturday). The track, which has been put in repair at a cost of £4,000, extends for a mile and a half along the well-known Madeira Road, and in its present condition presents one of the finest courses in the world.

Judging by the enormous number of entries—even though on an average each car represented about four entries—there can be no doubt about the feeling with regard to a sporting event of this kind, and it is only a pity that, as at present held, speed events conducted on these lines can only put a premium on speed, pure and simple, and that they therefore offer so poor a guide to the intending purchaser, who requires a reliable, and good all-round, *touring* vehicle.

ON the evening prior to the opening of the Brighton meeting, the A.C.G.B.I. held a dinner at the Royal Pavilion under the chairmanship of the Hon. Arthur Stanley, M.P., who was supported by the Mayor of Brighton and several members of the Corporation. After Mr. Stanley had proposed the loyal toasts, Mr. Bird gave the Mayor and Corporation, and, in his speech, paid great tribute to the help which the club had received from the Brighton officials. The Mayor of Brighton, in reply, expressed his desire that this meeting would become an annual event.

The Hon. Arthur Stanley, in replying to the toast of the Automobile Club, which had been proposed by the Mayor, said that although it was inadvisable at the present time to do anything which might increase the agitation against motorists, yet he was very optimistic about the new Bill, because he had observed a distinct change for the better in the attitude of the most prominent anti-automobilists in Parliament. Mr. Stanley said he was still further confirmed in this view because he considered that the industry had arrived at such a state that it could not possibly be crushed, however much some people might be against the movement. There were 58,000 cars and cycles now registered, and there were some 11,000 vehicles for purely commercial purposes on order, which in themselves represented a capital of far too serious a magnitude to be at the mercy of a few malcontents.

Colonel Holden proposed the toast of the Press, and said that the present agitation against high-powered cars was not desirable, because high power was necessary for comfortable touring. It was, said Colonel Holden, those drivers of such vehicles who do not observe due consideration for others that the Press would do well to put down.

The cars started at the East-End on a slight declivity for about 30 yards. Several of the events at this meeting were of a sufficiently diverse character to slightly vary the monotony of cars run under a classification by price basis. On the Wednesday, there was a race between a number of 15-h.p. Darracqs, a series of 30-h.p. Daimlers took their turn on Thursday, and similar events were on the programme for the other days between 15-h.p. White Steam

cars, 35-h.p. Daimlers, and 15-h.p. Orleans. The programme for each day was very similar in character, and included an event for Racing Cars. On the last day but one, there was a Ladies' Handicap Race, and the special event was the *Daily Mail* 100-Guinea Challenge Cup for Racing Cars. Saturday was occupied with two Handicap Sweepstakes—one for Racers—and the *Auto-car* Challenge Cup, open to all comers.

The events for the touring cars brought together most of the well-known makes of vehicle, while in the racing section still greater sport was promised by the entry of such cars as the 150-h.p. Dufaux, driven by the Hon. C. S. Rolls; a 100-h.p. Rochet-Schneider, entered by Theodore Schneider, besides the Napier Gordon-Bennett racers, Sir Ralph Gore's 100-h.p. Mercedes; and an 80-h.p. De Dietrich, entered by Charles Jarrott. For the *Daily Mail* Challenge Cup, Miss Dorothy Levitt was down on the programme to drive an 80-h.p. Napier, while Miss Claudia Lassell was the entrant of a 90-h.p. Mercedes.

The only times given for the touring cars was the difference between the winner (taken as Zero) and the next car. Some exciting finishes were made, notably the White Steam car in Event 4, which made a splendid spurt a few yards from the finish, and won by one-fifth of a second.

When the racers began to show their paces, interest rose considerably. Earp, in Event 7, won his race in splendid style with his 90-h.p. Napier against Hutton's 120-h.p. Mercedes. Earp's time being 45½s. (= 79½ m.p.h.), the best of the day. The Dufaux 150-h.p. racer, driven by the Hon. C. S. Rolls, was not running well, and proved a great disappointment, being hopelessly outpaced in its heat.

Neither Miller's 100-h.p. Fiat or Jarrott's 80-h.p. De Dietrich started amongst the racers. Rawlence's 90-h.p. Mercedes broke a valve just after starting, and Guinness' 100-h.p. Darracq stopped after it had gone a few yards down the course.

Results of the First Day's Racing.

Scratch Race for 15-h.p. Darracq Cars.—1st, Hugh Kennedy; 2nd, H. E. Hall; 3rd, J. Keele. Won by 5½s.

Tourist Motor Cycle Handicap (max. cyl. capy. 80 by 80).—1st, Minerva, No. 9; 2nd, Rex, No. 23; 3rd, J.A.P., No. 25. Won by 3½s.

Cars up to £200 (two passengers).—1st, Lewis' 8-h.p. Rover; 2nd, F. Wilkinson's 8-h.p. Stanley Steamer. Won by ½s.

Chassis, price from £400 to £500.—1st, Keele's 15-h.p. Darracq; 2nd, S. Wright's 15-h.p. Darracq. Won by 1½s.

Chassis, price from £700 to £800.—1st, G. H. Warne's 28-h.p. Daimler; 2nd, Miss Victoria Godwin's 30-35-h.p. Ariel. Won by ½s.

Scratch Race for 30-h.p. Daimler Cars.—1st, J. M. Gorham, No. 107; 2nd, A. Hordern, No. 102. Won by half a length.

Racing Cars weighing not more than 1,000 kilos.—1st, Earp's 90-h.p. Napier, 47½s.; 2nd, Hutton's 120-h.p. Mercedes, 53s.

Aston Hill-Climb.—The Hertfordshire A.C. held its second annual open hill climbing handicap at Aston Hill, near Wendover, Bucks, on July 15th.

Aston Hill runs through the property of Mr. Alfred C. de Rothschild, and this gentleman took a personal interest in the competition, and very hospitably entertained the company.

There were twelve entrants, though only nine faced the starter.

Each car was allowed two ascents, the best to count. Mr. C. Lorenzer, driving a 35-h.p. Beaufort down, met with a mishap within a few hundred yards of the hill. In trying to pass Dr. Kerr, a member of the club, riding a motor cycle, the Beaufort got on the rough grass at the side of the road, the steering became unmanageable, and the car plunged into the ditch, throwing the occupants over the hedge. Luckily, no one was hurt, and the frame, although parts of it were bent, did not fracture.

The following are the cars and the times:—

Car.	Driver.	mins.	secs.
24-h.p. Thornycroft ...	T. Thornycroft ...	2	7½
18-h.p. Siddeley ...	Oscar Thompson ...	2	55
10-h.p. Speedwell ...	A. J. Dew... ..	2	54½
15-h.p. Darracq ...	A. Rogers ...	3	8½
24-h.p. Beaufort ...	J. Lownds ...	2	8½
10-h.p. Alldays ...	E. Blakemore ...	2	19½
25-h.p. Delahaye ...	T. H. Wright ...	2	50½
12-h.p. Crypto ...	E. T. Pryor ...	4	56½
18-h.p. National ...	P. Lamb ...	2	39½

Eastbourne Hill-Climb.—The results of the Handicap Hill-Climb on East Dean Hill, organised by the Sussex A.C. on July 13th, have now been issued. The marks obtained and the order of merit for the whole of the 14 cars that completed the course are as follows:—

		Marks.	Time.	Class.
			m. s.	
1	M. F. Miéville's 12-h.p. Peugeot ...	122.0	5 0	B
2	M. F. Miéville's Baby Peugeot ...	96.8	6 30½	A
3	L. Russell's 10-h.p. Star ...	93.4	4 46½	B
4	Scrase-Dickins' 7-8-h.p. Talbot ...	87.8	8 20	A
5	Rev. F. A. Pott's 15-h.p. Darracq ...	87.2	4 33½	B
6	H. G. Hall's 15-h.p. Darracq ...	84.4	3 53½	B
7	G. H. Warne's 28-h.p. Daimler ...	76.6	3 55½	C
8	W. H. Tribe's 18-h.p. Peugeot ...	76.3	4 50½	C
9	J. W. Aps's 14-h.p. Daimler ...	71.0	5 56½	C
10	Guy Baxendale's 24-h.p. Thornycroft ...	67.2	3 56½	C
11	F. K. Brydges' 10-h.p. Argyll ...	59.4	6 40	B
12	G. Hennessey's 16-20-h.p. Martini ...	55.5	5 33½	C
13	S. Jones' 16-h.p. Darracq ...	53.0	7 7½	B
14	Rev. H. T. Boyd's 8-h.p. Darracq...	52.0	7 33½	A

The prize winners and silver medalists, therefore, in the several classes are as under:—Class A.: 1st prize, cup, Mr. M. F. Miéville's Baby Peugeot; 2nd, County Club's silver medal, Mr. A. Scrase-Dickins' 7-8-h.p. Talbot. Class B.: 1st prize, cup, Mr. M. F. Miéville's 12-h.p. Peugeot; 2nd, Club's silver medal, Mr. L. Russell's 10-h.p. Star. Class C.: 1st prize, cup, Mr. G. H. Warne's 28-h.p. Daimler; 2nd, Club's silver medal, Mr. W. H. Tribe's 18-h.p. Peugeot.

Mount Ceniz Hill Climb.—This annual event took place on Sunday last, before a very large gathering of people, and was also witnessed by the Queen Mother of Italy and the Duke of Genoa. Great interest was added to the meeting this year from the fact that Lancia, Nazzari, and Cagno were amongst the entrants with their splendid Gordon-Bennett Fiat cars. Unfortunately, the two De Dietrich racers did not take part. The distance was 22 kiloms., with an average grade of 1 in 8. Last year the victory was obtained by Lancia, on his Fiat, in 22m. 24½s., but this year this time was not only beaten by the two sister Fiat cars of Nazzari and Cagno, but also by Hemery, on an 80-h.p. Darracq. In the Tourist Class, another Fiat of 75-h.p. came also very near to the old time, whilst a 24-h.p. Itala light car made the splendid time of 23m. 57½s. Lancia was unfor-

tunate in losing 16 minutes at the start. The chief results were as follows:—

Racers.

Heavy Cars.—1. Nazzari (100-h.p. Fiat), 19m. 18½s.; 2. Cagno (100-h.p. Fiat), 19m. 26½s.; 3. Hemery (80-h.p. Darracq), 20m. 26½s.; 4. Vitalis (100-h.p. Rochet-Schneider), 23m. 51½s.

Light Cars.—1. Raggio (24-h.p. Itala), 23m. 57½s.; 2. Blart (24-h.p. Itala), 27m. 25½s.; 3. Brogliatti (20-h.p. Darracq), 34m. 27½s. Previous record—Ceirano, 28m. 52½s.

Motor Bicycles under 50 kilogs.—1. Riva (8-h.p. Peugeot), 24m. 5s.; 2. Maffei (5-h.p. Maffei), 24m. 33½s.; 3. Reale (7-h.p. Peugeot), 28m. 4½s. Previous record—Maffei, 29m. 13s.

Tourist Cars.

Heavy Cars.—1. 75-h.p. Fiat, 23m. 6½s.; 2. 30-h.p. Itala, 24m. 41½s.; 3. 50-h.p. Itala, 25m. 37½s. Previous record—Gandini, 29m. 43½s.

Light Cars.—1. 16-h.p. Clém.-Bayard, 41m. 34½s.; 2. 16-h.p. Rocar, 43m. 40½s. Previous record—30m. 47½s.

Voiturettes.—1. 7-h.p. Peugeot, 56m. 14½s.; 2. 6-h.p. Peugeot, 1h. 28m. 35s.; 3. 6-h.p. Peugeot, 1h. 29m. 38½s. Previous record—Alby, 1h. 30m. 54½s.

Hill-Climb and Speed Tests.—Under the auspices of the North of France A.C., the annual event for motor vehicles took place near Boulogne, from the 14th to the 16th of July. The programme included a circuit for tourist cars, during which times were taken—standing kilometre on Tingry Hill, the flying kilometre on the flat at Wizernes, and over the same distance on the Doullens Hill beyond Boulogne, the cars being also timed over 5 kilometres from a standing start. The total of these events determined the ultimate winner of a much coveted Challenge Cup presented by King Leopold II. In the result the chief times for this trophy were as follows:—

En'rant, Car, and Class.	Tingry Hill.	Flying kilom.	Doullens Hill.	5 kiloms.	Total Time.
	m. s.	m. s.	m. s.	m. s.	m. s.
1. Franchomme, 15-h.p. Serpollet (Cat. 3)	1 25 0	47½	1 48½	4 7½	7 24½
2. Ritchey, 40-h.p. Brouhot (Cat. 6)	1 40½	0 58½	1 19½	4 7	8 5½
3. Fraignac, 18-h.p. La Buire (Cat. 4)	1 59	1 12½	1 26½	4 38½	9 16½
4. Bernard, 8-h.p. Corre (Cat. 1)	3 21½	1 48½	4 3	6 54½	16 7½

On the Doullens Hill, racing cars were also tried over a half kilometre, with a flying start, for the De Caters Challenge Cup, with the result that Wagner, on his Darracq, was first in 15½ secs., and Hanriot, on a Bayard-Clement, second in 15½ secs.

Ostend Motor Week.—Last week we gave the results for the flying kilometre and for the racers over 10 kiloms., and the tourist vehicles over 5 kiloms. In Cat. 7 of the latter upon investigation the Brouhot car's time was found to be 3m. 42½s. Therefore, the Germain takes premier position in this class with 3m. 29½s.

Continuing on the following day, Wednesday, the tourist car trial was run off over 240 kiloms. for cars over 24-h.p., and 180 kiloms. for cars below that power, on a 60 kilom. circuit, starting from Ostend. 28 cars started, and 25 accomplished the course without trouble or incident. The start was at 7 a.m., and the neutralised portions *en route* on each circuit were Bruges, 10 mins.; Blankenberghe, 5 mins.; Ghisteltes, 5 mins. The results were as follows:—

CAT. 1.—Under 1,000 kilogs. weight and 15-h.p.

Class A (180 kiloms.).—1. Vivinus, 2h. 57m. 24½s.; 2. Darracq, 3h. 24m. 20s.; 3. Darracq, 4h. 4m. 44½s.

Class B (240 kiloms.).—1. Metallurgique, 4h. 12m. 22½s.

CAT. 2.—Over 1,000 kilogs.

Class A (180 kiloms.), under 15-h.p.—1. Germain, 4h. 54s.; 2. Serpollet, 4h. 4m. 9s.; 3. Hurtu, 4h. 21m. 48½s.

Class B (180 kiloms.), 15 to 24-h.p.—1. Fiat, 2h. 48m. 30s.; 2. N.A.G., 2h. 55m. 58s.; 3. La Buire, 3h. 6m. 13½s.

Class C (240 kiloms.), 24 to 35-h.p.—1. Mercedes, 3h. 50m. 42½s.; 2. Germain, 3h. 52m. 29½s.; 3. Mercedes, 3h. 57m. 26½s.

Class D (240 kiloms.), above 35-h.p.—1. Germain, 3h. 13m. 46½s.; 2. Mercedes, 3h. 28m. 41½s.; 3. Brouhot, 3h. 43m. 30½s.

CAT. 3.—Over 1,400 kilogs.

1. Germain, 3h. 33m. 11s.

On the Thursday the speed trials over the standing mile and the flying kilometre were run off, the awards being made on the combined times of the two. Guipponi, on his Peugeot motor bicycle, was again to the fore in regard to remarkable exhibition of speed. On his machine, weighing under 50 kilogs., he accomplished the extraordinary time of 27½ secs. for the flying kilometre, a speed of 132.35 kilom. (82.24 miles) per hour, whilst his time for the standing mile was 55⅝ secs. = 64.74 miles per hour, both new worlds records. These were the only new records put up on the day. The following is a table of the chief results, the rest of the week being devoted to receptions, *corso fleuri*, exhibition of the competing vehicles at the Kursaal, and the distribution of prizes.

Racers.

Motor Bicycles under 50 kilogs.

Driver and Machine.	Standing Mile.		Flying Kilom.	
	m.	s.	m.	s.
1 Guipponi (Peugeot)	0	55½	0	27½
2 Cissac (Peugeot)	0	57½	0	29½

Motor Cycles.

1 Guipponi (Peugeot)	1	3	0	31½
2 Pilette (De Dion trike)	1	40½	0	38½
3 Coppin (Red Star)	2	11½	1	7½

Light Cars.

1 Touloubre (Darracq)	0	54½	0	26½
2 Renonce (Gregoire)	1	15	0	39
3 Civelli (Gregoire)	1	22	0	37½

Heavy Cars.

1 Wagner (Darracq)	0	49½	0	26½
2 Rigolly (Gobron)	0	52½	0	23½

Tourist Cars.

CAT. 1.—Chassis under 5,000 francs.

1 7-h.p. Oldsmobile	2	38½	1	52½
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CAT. 3.—Chassis under 9,000 francs.

1 Darracq	1	33½	0	47
2 Vivinus	1	38½	0	57½
3 Vivinus	1	49½	0	55½

CAT. 4.—Chassis under 12,000 francs.

1 Fiat	1	32	0	47½
2 Darracq	1	41½	0	49½

CAT. 5.—Chassis under 15,000 francs.

1 La Buire	1	33½	0	49½
2 La Buire	1	39	0	53½

CAT. 6.—Chassis under 17,000 francs.

1 Rochet-Schneider	1	20	0	39½
2 Rochet-Schneider	1	24	0	42½

CAT. 7.—Chassis under 20,000 francs.

1 Germain	1	22½	0	42
2 Radia	1	28½	0	44
3 Brinhot	1	50½	0	45½

CAT. 8.—Chassis over 30,000 francs.

1 60-h.p. Mercedes	1	10½	0	35½
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GLIDDEN CUP ROUTE.—Two roads passed over by the White Car during the exploring trip.

CEYLON NON-STOP MOTOR RUN.—Reading from left to right: Mrs. Forsythe, winner in Class III., on her 8-h.p. Wolseley, Mr. H. G. Sculfer on Mr. G. S. Brown's 6-h.p. Wolseley (winner, Class II.), and Lieut. Skelton on his 12-h.p. Wolseley.

Ceylon Motor Trials.—Following the example of India, the Ceylon A.C., on May 11th, held a non-stop run over a distance of 72 miles, starting from Kandy to Kegalle by the Kaduganawa Pass—a very trying descent—then to Polgahawella, Kurunegalla back to Kandy. On the last stage the Gelegedera Pass had to be scaled for four miles, with bad turnings and gradients ranging up to 1 in 8. Some excellent roads are passed over during this run, but on the whole it may be regarded as a very severe test for cars of anything but high power. The perfectly exquisite scenery is somewhat of a compensation for the trials to which owners have to put their vehicles during the "trip." At present in the Island, Wolseley cars are far away in the ascendant, and amongst the actual starters, besides motor cycles, only one other make of car was in evidence, viz., a 7-h.p. Oldsmobile, although a 8-h.p. Rover and a 16-h.p. Chelmsford car were entered, but scratched before the start. The Wolseleys totalled five, viz., three 6-h.p. cars, an 8-h.p., and a 12-h.p. A minimum

time for the course was enforced of 4 hours, and a maximum of 6 hours. Mr. G. S. Brown on a 6-h.p. Wolseley, driven by Mr. H. G. Sculfer, proved the winner in Class II. (cars under 10 cwts.), time 4h. 4m., and in Class III. (cars over 10 cwts.), Mrs. Forsythe, driving herself on an 8-h.p. Wolseley, was first, in 4h. 7m. Both the 6-h.p. Wolseleys of Messrs. C. C. S. Hodgson and H. P. Borrell were before their time, and although the latter made a non-stop run, they were necessarily disqualified. Unfortunately the little Oldsmobile could not get through in the maximum time allowed, but she was timed for a "non-stop." Mrs. Forsythe's only stop was caused by missing gear. Lieut. D. S. Skelton's 12-h.p. Wolseley lost its chance through a chain breaking. We give photographs of the winners on this page.

Siddeley-Meyan Match.—This match started on Wednesday morning, the 12th July, at 5.20 a.m., from Paris. Both cars began in fine style, M. Meyan going at a great speed, averaging about 60 kiloms. per hour for the first few hours. The Dietrich car reached Boulogne at 1.16 p.m., not having stopped for lunch, the only stop being for ten minutes about 25 kiloms. before Abbeville, owing to loss of water. There were officials to meet the cars at most of the controls, and they were much interested in the Siddeley, asking innumerable questions. The Siddeley arrived at Boulogne at 4 o'clock, having made a stop of two hours for lunch at Dieppe, otherwise making a non-stop run at an average speed of 34 k.p.h.

The cars started off from Boulogne on the morning of the 13th inst., the French car reaching Sedan at 2.15 p.m., not stopping on the route for lunch, and the Siddeley reaching Sedan at 4.56 p.m., having made a stop of two hours at Valenciennes for lunch, and averaged a speed of 35.7 k.p.h.

They both started off from Boulogne in a fog, and as the route is tortuous, both cars lost their way. Later, when

CEYLON NON-STOP MOTOR RUN.—Mr. H. G. Sculfer and Mr. Philip Ryan (Observer) reaching the winning post on Mr. Brown's 6-h.p. Wolseley, and securing the best non-stop award in Class II.

GLIDDEN CUP ROUTE.—A typical bridge over an erstwhile ford.

the mist had cleared up, the route got more difficult still, and the cars did about 25 kiloms. extra.

The cars left Sedan the next morning as usual a little after 5, and reached Vesoul in good time at a speed of 37.5 k.p.h., the travellers lunching together for the first time.

On the fifth day, July 16th, the Siddeley car, after climbing Mont Cenis within time limit at about the same speed as the Dietrich without changing sprockets, Embrun was reached at 5 o'clock, giving an average speed for 287 kiloms. of 32.5 per hour.

In like manner the next day, the 17th, was completed successfully, no points being lost from the day of starting.

On this day the Col D'Allos, 2,200 metres rise over a distance of 21 kiloms., was climbed by the Siddeley in 59 minutes.

MOTOR BOATING.

The Motor Yacht Club.—The Royal London Yacht Club have made the members of this Club honorary members of their Club House at Cowes for this season, with the exception of Cowes week, when the arrangement will be limited to those members owning boats.

For the Paris-to-the-Sea Motor Boat Race, which, for the third year, commences to-day (Saturday), a very large list of competitors are down to take part, including most of the crack racing craft which have recently come forward so prominently.

THE heavy oil carburettor employed by Herald I. when she competed for the Quinnone de Leon Cup was the "Eveno."

GLIDDEN CUP ROUTE.—A break in the mountain forest.

MOTOR CYCLING.

Auto-Cycle Club.—The annual reliability trial for auto-cycles, promoted by the club, and to which we have several times referred, takes place, as already announced, from August 14th to August 19th next. The route selected for the trial this year is over entirely new ground in the West and South of England. In order to enhance the value of these trials to the manufacturer, the route has been, as far as possible, laid through well-populated districts, and the mid-day stops and destination for each day is always in some important town.

The machines entered will be divided into the following classes:—

1. For single-seated passenger cycles.
2. Two-seated passenger cycles (A and B).
- A. Selling to the public at not more than 85 guineas.
- B. Selling to the public at more than 85 guineas.

The distance to be covered during the whole of the Trial will be 767½ miles. The following is the route suggested:—

First Day.—London, Watford, Aylesbury, Oxford, 60½ miles; lunch; Eynsham, Witney, Cheltenham, Worcester, 65½ miles. Total for the day, 126½ miles.

Second Day.—Worcester, Leominster, Hereford, Ross, Gloucester, 69½ miles; lunch; Cirencester, Malmesbury, Chippenham, Bath, and Bristol, 62½ miles. Total for the day, 132 miles.

Third Day.—Bristol, Weston-super-Mare, Bridgwater, Taunton, 51½ miles; lunch; Minehead, Exeter, 67 miles. Total for the day, 118½ miles.

Fourth Day.—Exeter, Honiton, Lyme Regis, Dorchester, Weymouth, 60 miles; lunch; Poole, Bournemouth, Southampton, 62½ miles. Total for the day, 122½ miles.

Fifth Day.—Southampton, Chichester, Brighton, 59½ miles; lunch; Lewes, Tunbridge Wells, Eastbourne, 61½ miles. Total for the day, 120½ miles.

Sixth Day.—Eastbourne, Hastings, Folkestone, Maidstone, 88½ miles; lunch; Sevenoaks, Reigate, Putney Bridge, Hyde Park, 59½ miles. Total for the day, 147½ miles.

Making a total distance to be covered throughout the Trials of 767½ miles.

In order to eliminate as far as possible the chance of a good machine being thrown out owing to tyre troubles, it has been decided this year to allow competitors to effect repairs under observation of a club official. For this purpose, a competitor who is troubled with his tyres on the road, may stop any of the competing passenger machines carrying an official observer, who will supervise the execution of the tyre repair. The time so occupied will be allowed for in each case.

Under no circumstances will a speed exceeding twenty miles per hour be allowed. Any competitor who exceeds this limit will be disqualified from taking further part in the Trials.

The entrance fee is £10 per machine, £5 of which will be returned if the machine actually starts on the first day's run. Entries at this fee close on Saturday, July 29th, after this date the entrance fee will be increased.

The number of any particular type of machine that may be entered by a manufacturer or agent is limited to one, but three machines of different types may be entered by the same maker.

It has been decided to award prizes to those riders who, together with their machines, present the best appearance throughout the trial, and a special prize, presented by Mr. A. J. Wilson, will be awarded to the lightweight bicycle accomplishing the best performance on a given formula.

Any manufacturer or agent who has not already received a copy of the preliminary Rules and Programme, should apply to the Secretary, Auto Cycle Club, 18, Down Street, Piccadilly, London, W.

The consumption test of the Club is to take place on September 2nd, the suggested route being from Thames Ditton to the top of Hindhead and back. No pedalling will be allowed, and engines must not be stopped except for traffic stops. A prize will be awarded on the basis of ten-miles per gallon, and, in addition, prizes will be given for the smallest consumption in each class, irrespective of weight.

We are glad to notice that a resolution has been passed by the Auto-Cycle Club Committee, recommending the A.C.C.B.I. to prohibit any motor bicycle running in the streets at Brighton Meeting (and we hope at all meetings) without an efficient silencer, except when actually racing. We have repeatedly drawn attention to this abuse, and are glad to see at last that some practical steps are likely to be taken to make it a cause for disqualification. The infinite amount of harm these machines do by the bad impression created amongst the general public is incalculable. We are

also pleased to notice that the Auto-Cycle Club are drawing special attention to the dirty and untidy appearance of many of the motor cyclists who are in the habit of competing in races. Many of these riders turn out covered in oil and their clothes all greasy and face and hands filthily black. The whole of the motor bicycle industry would, without question, be considerably benefited if the suggestion of the club, that these drivers should rather appear in a smart costume, and, as far as possible, be reasonably clean when driving in public races.

Blackpool Race Meeting.—It has been decided to include two auto cycle races at the meeting to be held at Blackpool on Thursday and Friday, July 27th and 28th.

Event No. 1.—Handicap for standard touring auto cycles having engines not exceeding 80 by 80, or the equivalent volume swept out. Entrance fee, 5s.

Event No. 2.—Scratch race for racing auto cycles not exceeding 110 lbs. in weight. Entrance fee, 10s.

The first prize in each event will be a silver cup, and, providing a sufficient number of entries are received, medals will be awarded to the second and third.

The classes for cars we gave on page 806, July 1st.

Motor Cycle Records.—At Canning Town track on Wednesday, July 12th, C. R. Collier, on his twin-cylinder "Matchless" machine, covered 54 miles 523 yards in the hour, beating the previous record by Barnes (49 miles 800 yards) by nearly 5 miles. His first new record was 6m. 46½s. for 6 miles (previous record 6m. 48½s.), and from this point he hauled down the records up to 50 miles easily—during which he also put up a new record for the flying start 5 miles of 5m. 28½s. (old 5m. 31½s.). The chief intermediate times, previous records, and holders, were as follows:—

Miles.	C. R. Collier.		Previous Best.		Holder.
	m.	s.	m.	s.	
1	1	14½	1	14	H. Martin.
5	5	40½	5	39	H. Martin.
10	11	16½	11	14½	T. Tessier.
15	16	47½	16	47½	E. Tessier.
20	22	9½	23	9½	J. Crundall.
25	27	39	28	49½	J. Crundall.
30	33	8½	34	33½	J. Crundall.
35	38	38½	41	59½	G. Barnes.
40	44	7	48	18½	G. Barnes.
45	49	41½	54	21½	G. Barnes.
50	55	16½	60	42½	G. Barnes.

One hour record: 54 miles 523 yards.

THE University of Liverpool Motor Club, on July 13th, held a hill-climbing contest on Parbold Hill. This hill has an average gradient of 1 in 15½, the steepest portion being 1 in 8½. The total length being a little over three-quarters of a mile. Medals were given for the best performance, as shown by the formula, $HP \cdot G \left(WC_1 + \frac{C_2}{T^2} \right)$ where C_1 and C_2 are constants depending on the hill.

Rider.	Machine.	Figure of merit.	Speed in m.p.h.	
R. L. Hall	2-h.p. Waverley Minerva	1'155	20'6	Gold medal
R. S. Royle	3-h.p. Addison	1'07	30	Silver medal and quickest time
Atherton	3-h.p. Addison	1'041	28'7	
R. L. Hall	3½-h.p. Waverley	1'01	27'2	
Atherton	3½-h.p. Addison Tricar	1'07	13	Silver medal
R. S. Royle	3½-h.p. Addison Tricar	1'018	13	

The rest did not get up.

Muratti £150 Trophy.—For the first time in the history of the sport, a contest extending over two days was carried to a successful issue by the Ulster Centre of the Motor Cycle Union of Ireland. The event was a 400 miles reliability run from Belfast to Dublin and back, and from Belfast to Londonderry and back. The contest was open to any amateur cyclist, the prize being a

handsome trophy presented to the Union by Messrs. Muratti, Sons and Co., Limited. The course was divided into two sections, the first, that from Belfast to Dublin, being run on Thursday, and from Belfast to Londonderry on Friday. Each section was divided into sub-sections, and a schedule drawn up with the hour for arrival at each checking station, so that in the case of two or more riders scoring an equal number of marks, the rider who approaches nearest to the schedule will be declared the holder of the trophy.

Controls were established at Dundalk and Dublin on the first day, and Limavady on the second—a stay of two hours being compulsory at Dublin and Limavady. Twenty-two competitors started on the 13th from Balmoral at 7 a.m.

Collisions, minor accidents, and chiefly punctures, put the majority of the riders out of the competition in the early stages, one unlucky rider, J. S. Garrett, recording eleven punctures in the first five miles.

H. Williamson, on a Rex, who was riding immediately behind the leader, came to grief at Swords, where he had a marvellous

escape from death by a bolting horse in a hay cart in charge of a youngster. The schedule time of arrival at Belfast was 6.49, and at that hour nine of the competitors had arrived.

On the second day, Friday morning, the start was from the Shore Road, Belfast, when nine, who finished on the previous day went away. Londonderry was reached at 3 o'clock, and the return journey entered on, the finishing point, which was at Coramoney, seven miles from Belfast being reached as under:—

			h.	m.	s.
F. Hulbert, Coventry (Triumph)	...	...	7	1	49
L. L. Wilkinson, Belfast (Minerva)	...	...	7	1	50
J. P. Burney, Belfast (Enfield)	...	...	7	2	5
R. M. Bryce, London (Brown)	...	...	7	2	41
E. A. Lowe, London (J. A. P.)	...	...	7	6	45
I. Stewart, Belfast (Triumph)	...	...	7	25	26

After investigation, the committee awarded the Trophy to R. M. Bryce, E. A. Lowe being second. No third placed.

CLUBS AND ASSOCIATIONS.

MOTOR UNION MEET AT CHESTER.—Visit to the Duke of Westminster's seat, Eaton Hall. View at the Hall. The Hon. Cecil Parker, who received the members of the Union, personally directing the cars upon their arrival.

Photo by R. Banks, Manchester.

Motor Union Meet at Chester.—The meeting of the Motor Union at Chester, to which we drew attention last week as about to be held, duly came off on Saturday last, and brought together a large gathering of motorists. The subject on which the chief activity of the committees appointed by the Union was concentrated, referred to the burning question of the hour—the elimination of the road hog, and the diminution of reckless driving on our highways. Very rightly, the committee assumed one of the principal causes of the evil to be the widespread employment of the foreign chauffeur, and they accordingly proposed to adopt measures for rendering the employment of home-grown drivers more general. The general education of English mechanics for this purpose would have the additional advantage of increasing the amount of lucrative employment in the country, and largely get rid of the reckless driving nuisance at the same time.

At the dinner, which was held at the Grosvenor Hotel in the evening, the Hon. Arthur Stanley, M.P., chairman of the Automobile Club and of the Motor Union, delivered a well-considered and tactful speech on the situation. He believed that the Motor Union had done enough to convince everyone that they desired to stamp the road hog out of existence. At the same time, however, they were banded together to defend their just rights as motorists, though they did not lose sight of the fact that others possessed rights

as well as themselves. Mr. Stanley further deprecated the use of the phrase "police traps," declaring that the Chief Commissioner of Police in London had told him that instead of setting a trap to catch as many motorists as possible, they simply informed motorists of complaints that had been made in regard to fast driving in any particular road, as this road was under observation.

In Brighton, Sheffield, Nottingham, and elsewhere, the police, it will be remembered, have adopted a somewhat similar line, communicating with the local automobile clubs when they have anything to complain of, with the invariable result that the best of feeling prevails, and the law is universally obeyed. Unfortunately this course of action is still somewhat exceptional. If Lord Stanley had spoken a few words in deprecation of the police traps set on lonely roads in the open country, he would have rendered his picture of the present situation more complete, and would have drawn further attention to what everyone recognises as an abuse of executive.

Berkshire A.C.—Lieut.-Col. Waring having been ordered abroad, the duties of hon. sec. will be performed, during his absence, by Mr. Walter L. Bourke, Moneycrower, Maidenhead, to which address all correspondence should be sent.

Tilting at the ring.—1. E. A. Rosenheim's 10-h.p. Argyll; 2. Gordon Chapman, 28-36-h.p. Daimler.

None of the competitors in the tortoise race finished, and consequently there was no award.

The programme concluded with a balloon chase by motor cars, the balloon proving the winner.

Society of Motor Omnibus Engineers.—A meeting was held last week when it was decided to form a new body under the above title. The first council was constituted as follows:—

Mr. F. C. A. Coventry, Great Western Railway.

Mr. R. Bell, London Motor Omnibus Company.

Mr. H. P. G. Brakeridge, London Road Car Company.

Mr. K. H. Buchanan, London Power Omnibus Company.

Mr. W. F. French, Sussex Road Motor Company.

Mr. P. F. Smith, Tillings, Limited.

Mr. W. M. Hodges, London and District Motor Bus Company.

Mr. G. Pollard, Birmingham Motor Express Company.

Mr. W. Spiller, London General Omnibus Company.

Mr. W. T. Smith, Eastbourne Corporation.

Photo by R. Banks, Manchester.

MOTOR UNION MEET AT CHESTER.—A group of the Committee of the Union at Eaton Hall.

Liverpool A.C. Gymkhana.—The gymkhana organised by this club at the Polo Ground, Childwall, on Saturday last, proved a very successful function, the proceedings being helped by the band of the 4th V.B. King's (Liverpool) Regiment. The five events on the programme attracted no less than 123 entries, the following being the results:—

Bending race.—1. A. E. W. Todd, 12-h.p. Richard-Brazier; 2. E. W. Pickmere, 5-h.p. Locomobile.

200 yards sprint handicap.—1. W. L. Goodman, 30-h.p. 6-cylinder Napier; 2. E. W. Pickmere, Locomobile.

Lady passengers' race for 4-seated cars.—1. Hugh Nelson, 7-h.p. Panhard; 2. A. R. Rathbone, 8-h.p. Richard-Brasier.

Society of Motor Manufacturers and Traders.

—For the ensuing year Mr. Sidney Straker has been re-elected President of the Society, and Mr. H. G. Burford and Mr. E. M. C. Instone,

Vice-Presidents. The Committee of Management elected from the council are as follows:—Messrs. H. Sturmey, S. F. Edge, Harvey du Cros, G. du Cros, Charles Jarrott, A. G. Williams, H. Austin, Frederic Coleman, Claude Johnson.



PUBLICATIONS RECEIVED.

Big Game Shooting in East Africa. London: The Mombasa (B.E.A.) Trading and Development Syndicate, Limited, 130, Fenchurch Street. Price 1s.

The Holidays, 1905: Where to Stay and What to See. London: Walter Hill, Southampton Row. Price 1s. (post free 1s. 5d.).

MOTOR UNION MEET, CHESTER.—At the meet of the Union on Saturday last, amongst the large number of cars present, there were no less than nine Rolls-Royce cars of various types in the gathering. The above is a photograph of these grouped together, and it forms a remarkable testimonial to the manner in which these cars, introduced comparatively speaking so recently, are being rapidly absorbed by automobilists throughout the country.

Mr. Rolls is on the left side of the group on an unfinished 6-cylinder car.

Haywards Heath Motor-'Bus Service.—All parts of the country are now trying the benefits of local motor 'bus services, and Haywards Heath is the most recent district to have its attractions enhanced by this speedy type of public vehicle. A 24-h.p. double-decked 'bus has just been supplied by Messrs. Dennis Bros., for service between Cuckfield and Lindfield; and on Thursday, the 13th inst., the vehicle underwent a trial run under the observation of several members of the Press.

The 'bus chassis is of the standard "Dennis" type, and embodies the worm-driven back axle and spring drive, which are the special features of Dennis cars. The driving wheels have staggered spokes, and run on tubular extensions of the axle-casing. The axle-casing is itself carried between horn-plates, instead of being tied to the frame by radius rods, and the twisting stress which comes on this mem-

Hayward's Heath new Motor 'Bus, which has just been supplied by Messrs. Dennis Bros.

View showing the Dennis worm-driven back axle, which is a special feature of all Dennis motor-vehicles.

ber is taken up by a spring-suspended torque-rod. The double-decked body has a seating capacity for 34 passengers, and Messrs. Dennis Bros. estimate the cost of up-keep (including depreciation, &c.) at 5½d. per mile run when loaded. The first cost of the

vehicle complete is £850, and depreciation is allowed at the rate of 15 per cent. per annum. The full consumption is calculated on an average of 6 miles per gallon when loaded, and four complete sets of tyres, at £36 per set, are allowed each year.

GLIDDEN CUP ROUTE.—Two methods of how the pioneer White Car replenished its water.

In the above illustration we show a very charming motor carriage which has been specially built for Dr. Harman Brown, of Coventry, by the Swift Motor Company, Limited. Dr. Brown is the first medical gentleman in Coventry, we understand, to adopt the motor car, but with such a specimen vehicle in daily evidence, many others can hardly fail to follow his good example. The car is fitted with a 3-cylinder engine developing 8-10-h.p., and has a standard pressed-steel frame.

MR. F. J. WILLIS, one of the Inspectors of the Local Government Board, held an enquiry on Wednesday in last week, at St. Albans, in regard to the application of the St. Albans City Council for the declaration of a 10-mile speed limit in that city. The application was supported, as usual, by the Town Clerk, the opposition on behalf of motorists being in the hands of Mr. Rees Jeffreys. A number of witnesses were examined, and it was elicited from the Town Clerk that, in his view, Section I. of the Act would have been much more effective had no speed limit been introduced into that measure at all—a point on which it will be remembered THE AUTOMOTOR JOURNAL laid considerable stress at the time the Act was under discussion. After the conclusion of the enquiry, which lasted some five hours, the Local Government Board Inspector made a tour of the city to inspect those portions to which attention had been called, in a *motor car*.

When the first White Steam Cars came out, they were very different looking affairs from the present machines, and largely resembled an American trotting buggy with the horse cut off. One of these "antiques," of which quite a number are in use in various parts of the world, is still running well in Johannesburg, and capable of carrying two stalwart Matabeles armed with the traditional knobkerries as shown in our photograph. The little car which we illustrate was one of the original 6-h.p. type and it is a good testimonial to the workmanship which—even at that date—the White Company put into their cars, that while most steam cars of similar appearance are now adorning the scrap heap, the Whites of the same date continue to do good service.

A 20-h.p. Thornycroft Petrol Omnibus, employed in regular service in London by the Midland Railway Company between King's Cross, Charing Cross, and Victoria Railway Stations.

ON Tuesday last the Bill promoted by the London County Council, to bring their trams over the bridges and along the Thames Embankment, which had passed in the House of Commons by the narrow majority of 1, was rejected by the House of Lords, by 64 votes to 33.

APROPOS of the fact that the Huddersfield branch of the Yorkshire Automobile Club last week took sixty of the patients out for an automobile run, *Punch* observes: "It is pleasant to remember that the relations between motorists and hospitals have always been close."

ON Saturday last, the annual outing of the Wolseley Tool and Motor Car Company's employees took place, when two special trains conveyed a large party of workmen and their friends to Portsmouth by Midland Railway, where a very pleasant day was spent. Special permission of the Admiral Superintendent had been accorded to the party to visit the dockyard, and the rest of the day was passed in making sea trips round the Isle of Wight, or to Portsmouth, Southampton, and Swanage. The weather throughout the day was brilliantly fine, and the trip in every way most pleasant and enjoyable.

APROPOS of the education of motor car drivers, the Education Committee of the L.C.C. have recommended an equipment grant of £550 to be made to the Governors of the Regent Street Polytechnic to provide for the establishment of classes for the instruction of motor car drivers. Of this sum, some £350 is to be spent on a motor car for teaching purposes, and £200 upon accessories, principally various types of engine. The Polytechnic propose to engage a special instructor to teach driving, and anticipate that the extra expenditure will be more than covered by the students' fees.

MR. MAX PEMBERTON, the well-known novelist, has been contributing to the columns of the *Daily Mail* a scorching indictment of police methods and police persecution adopted in regard to automobilists. He goes over the familiar ground, and repeats most of the views with which we are familiar; but of course the point is that he puts in a terse and amusing manner some of the humorous absurdities perpetrated. Thus,

"In a solemn tone of voice the Chairman of the Bench commended the merits of the donkey-cart, and denounced the wickedness of those who believe that the motor industry is ultimately to be the greatest this country has ever embarked upon.

A local Bench believes that our high roads were built for chickens and governess carts."

And this is how he sums up the police trap:—

"The motor trap has few teeth; but they close relentlessly upon the pockets of the victims, clutching the innocent and the guilty alike in the magisterial embrace.

As a measure for the protection of the public, the motor trap is the least effective contrivance known to the law. As a satire upon village justice it is often supremely successful."

THE first petrol motor cab that has ever been to the House of Commons approached the sacred gate last week and took away a member in the ordinary course of business without attracting much attention. It was in 1899, we understand, that the first motor car entered Palace Yard, and six years later we have the first petrol motor cab there; though, it must be remembered, that in the old days of the yellow electric cabs those vehicles occasionally invaded the sacred precincts.

THE 38th annual Exhibition of the British Medical Association opens on the 24th inst., in the Drill Hall, Newarke, Leicester. The Association is making a special feature of the exhibition of motor vehicles, &c., suitable for use by the medical profession.

Another view of the Midland Railway Company's Thornycroft Omnibus, which has a 4-cylinder engine and a single chain "drive" to the back axle. The chassis is similar to that employed by the makers for their 2-ton petrol luries—described in our issue of April 29th last.

COMMERCIAL POINTS.

THE genuine French "D" Oil, for which the United Motor Industries, Ltd., are sole wholesale agents in this country, was, we learn, used exclusively on the winning Gordon-Bennett car this year, and also in the French Eliminating Trials for the Gordon-Bennett Race; no less than twenty-two out of the twenty-four cars were lubricated by this genuine French "D" Oil.

MR. A. HIRST has joined the Simms Manufacturing Company, Limited, and has taken up the management of the magneto department.

MOTORISTS touring in France may be interested to learn that they can get their tubes and covers repaired by the H.F. process, which has come into such prominence in this country, at Messrs. Harvey, Frost and Co.'s Paris branch, 79, Rue des Archives, where the H.F. vulcanizers are in regular operation. It may also be pointed out that these appliances are to be found in practically every French town of importance, owing to the growing requirements for vulcanized repair work.

MESSRS. OLIVER, MORRIS, AND BALL, of Grosvenor Works, Tunbridge Wells, advise us that they have added to their business of carriage builders a department to deal with motor cars and accessories. For this branch Mr. E. Bruce Ball, A.M.I.M.E., &c., has joined the firm. In addition to having fully-equipped workshops for the repairs of cars, provision has been made for a large garage.

THE British Empire Motor Trades Alliance has received an enquiry for the names and addresses of British firms who press by machinery planished steel or aluminium bucket seats for automobile bodies. Firms who can fulfil these requirements are requested to communicate with J. B. King, secretary, at 11, Red Lion Square, W.C.

PICTURE Post-Cards are so much the present craze that they have become quite a distinct branch of advertising, and the Continental Tyre and Rubber Company have, in order to keep pace with the times, issued a humorous set of coloured post-cards, which may be obtained by any of our readers simply for the trouble of writing to the company for them.

IN Göteborg in Sweden, with its fine harbour and shipping business, the "Board of Trade Journal" informs us, on the authority of the United States Consul (as usual), there is a considerable demand for petrol motors, for pleasure launches and boats, for kerosene motors for fishing boats, barges, and small tug boats, and for small cheap motors which can be readily fitted in open row boats. Presumably, therefore, machines of the rudder motor type, which can be hung on the stern of the boat, ought to find a market in Göteborg.

NEW COMPANIES REGISTERED.

Chichester and Selsey Motor Omnibus Company (Limited).—Capital, £20,000 in £1 shares (19,900 ordinary and 100 deferred).

Petromobile Company (Limited), 17, Basinghall Street, E.C.—Capital, £500 in 1s. shares.

"Vico" (Limited), 14, New Burlington Street, W.—Capital, £50,000 in £1 shares (10,000 six per cent. cumulative preference). Object, to acquire from G. Stuart Ogilvie, J.P., certain patents relating to improvements in tyres and wheels for road vehicles. First directors, E. Marshall Hall, K.C. (chairman), S. F. Edge (managing director), G. Stuart Ogilvie, J.P., and C. Sangster.

X-Electric Accumulator Company (Limited), 18, Leadenhall Street, E.C.—Capital, £60,000 in £1 shares. Object, to acquire from F. L. Oppermann, of 21, Ashworth Mansions, Elgin Avenue, W., certain inventions in relation to the manufacture of accumulators.

THE Ceylon Motor Company, Limited, has been registered in Ceylon with a capital of Rs250,000 divided in Rs100 shares. The first directors are Messrs. W. S. T. Saunders, W. Shakespeare, and Robert Davidson.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

623. 12th January, 1905. Improvements in Metallic Axles for the Wheels of Road Vehicles. Hugh Butler, of the Kirkstall Forge Company, Kirkstall Forge, near Leeds. This invention refers to those axles for the wheels of road vehicles which are composed of rolled steel, in which the bed extending between the barrels is constructed of a length or lengths of rolled steel of girder formation, and the barrels which are made with an enlarged butt-end or flange are fixed to the ends of such a bed, and the object of the invention is to reinforce the joint made between the end of the bed and the barrel which is fixed thereto. There are eleven figures. Fig. 1 is a sectional elevation of the axle end. The bed consists of a girder of H-section, having its web, 1, vertical, and its flanges, 2, 3, horizontal, the ends, 4, 5, of the flanges being divided from the web, the upper flange, 4, being bent upwards and the lower flange, 5, downwards. Each barrel, one for attachment to each end of the bed, has an axial recess to receive the projecting web end, 6, of the bed, and the upper and lower portions of the flange, 7, which is formed on the inner end of the barrel present a surface to which the bent ends, 4, 5, of the bed flanges are secured. The bed flanges, 4, 5, preferably, and in the construction shown, enter recesses in the barrel flange, 7, and inwardly projecting ears, 8, 9, are formed on the barrel flange which are bent laterally over the bed flanges, while horns, 10, are formed on the inner face

flanges of the bed are fixed, while the other ends of the diagonal stays, 11, 12, extend to the upper and lower faces of the flanges of the bed to which they are rivetted, and thus a diagonal bracing is provided, which is found to greatly add to the strength and stability of "built up" axles of this type. June 29th, 1905.

17705. 15th August, 1904. Improvements in Vapourisers. The British Thomson-Houston Company, Limited, 33, Cannon Street, London. A Communication from the General Electric Company of Schenectady, New York, U.S.A. This is a vapouriser for supplying fuel to internal combustion engines, and the object is to maintain a supply of hydro-carbon vapour under constant pressure, the vapour to be mixed with air and supplied to the engine in the usual manner. A receiver is provided to which the oil is supplied under pressure, in which

from the engine are caused to pass in the direction shown by the arrows. The vapour generated in the chamber is drawn off through the pipe, c; d² is the supply tank or reservoir from which fuel is fed to the vapouriser through the pipe, d, which has two branches, d¹ and d². Each branch has a check valve. The valve, f, in the pipe, d¹, opens toward the vapouriser, and the valve, g, in the pipe, d², opens towards the pipe, d. The pipe, g, is also controlled by a hand-valve, e. When the chamber is filled to the required level the hand-operated valve, e, is closed until the proper degree of vapourisation takes place, after which the valve may be opened, and should be left open during the working of the apparatus. The exhaust heat causes the liquid fuel to boil. When the pressure of the vapour in the chamber becomes sufficiently great to overcome the pressure of the oil in the pipe, d, the vapour will pass out through the pipe, d², past the loaded valve, g, and into the pipe, d, where the vapour is condensed by the cold oil. If the oil rises in the vapouriser above the upper branch pipe the vapour pressure will force the surplus oil out through the pipe, d². The pipe, d¹, admits oil to the chamber when needed, and the vapour is taken to the engine by way of the pipe, c. June 29th, 1905.

Patent Specifications Published.

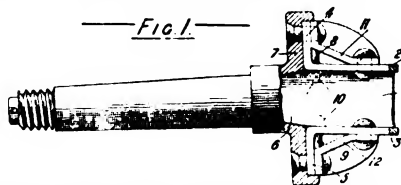
Applied for in 1904.

Published July 20th, 1905.

- 15,144. F. C. HASTE. Speed-gears.
- 16,406. G. DALSACE. Acetylene lamps.
- 17,145. PRASE AND SCHUMACHER. Wheel.
- 17,512. F. R. SIMMS. Vapourisers.
- 17,548. C. P. HORTON. Band brakes.
- 17,973. SOC. A. VEDRINE ET CIE. Suspending elec. motors.
- 18,545. J. MITCHELL. Puncture locator.
- 18,638. J. FRATHERSTONE. Driving appliances.
- 19,408. H. LUCAS. Lamps.
- 23,387. J. ROTHHART. Wheels.

Published July 27th, 1905.

- 12,279. F. BAKER. Friction clutches.
- 12,522. J. D. ROOTS. Int. combn. engines.
- 17,028. — VAN DER WEYDE AND — BONNELL. Motor cars.



of the barrel flange which project beneath the upper and above the lower flanges of the bed. The stays, 11, 12 are shown of T-section, the ends abutting on the upwardly and downwardly turned flanges, 4, 5, of the bed, and secured by those rivets by which the

a definite volume of the oil is maintained and heated to or above the boiling point. There is one figure which is a sectional elevation of this vapouriser. The vapourising-chamber, a, has a number of vertical fire tubes, b, through which the exhaust gases

The Automotor Journal, July 29th, 1905.

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JULY 29TH, 1905.

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Photo by Mr. Frederic Coleman.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
July 27-28-29	*Blackpool Motor Meeting.
July ...	24 Hours Run (Motor Cycling Club).
Aug. 1 ...	Motor Boat Races, Sea View (M.Y.C.).
Aug. 2-3 ...	Motor Boat Races, Southampton Water (M.Y.C.).
Aug. 2-3 ...	*Motor Boat Trials (Southampton).
Aug. 7 ...	Motor Boat Races, Solent (B.M.B.C.).
Aug. 8 ...	Motor Boat Races, Solent (M.Y.C.).
Aug. 9 ...	Motor Boat Races, Southampton (B.M.B.C.).
Aug. 10 ...	Motor Boat Races, Cowes (B.M.B.C.).
Aug. 11-12 ...	Motor Boat Races, Solent (M.Y.C.).
Aug. 11 or 18	*Quarterly 100 Miles Trials.
Aug. 14-19 ...	Auto Cycle Club 750 Miles Reliability Trial.
Aug. 15-16 ...	Motor Boat Races, Ryde (B.M.B.C.).
Aug. 26 ...	Inter-Team Trial (Motor Cycling Club).
Sept. 2 ...	Skegness Races on Sands (Notts A.C.).
Sept. 2 ...	Auto Cycle Club, Consumption Trial.
Sept. 9 ...	Brown Cup (Motor Cycling Club).
Sept. 14 ...	*Tourist Trophy (Isle of Man).
Sept. 15 ...	*Daily Graphic Cup (Isle of Man).
Sept. 20 ...	Motor Boat Burnham-on-Crouch (B.M.B.C.).
Sept. 20, Oct. 24	*Van Trials.
Sept. 23 ...	Scottish A.C. Hill Climb.
Sept. 30 ...	Auto Cycle Club Race Meeting, Crystal Palace.
Oct. 4 ...	*Speed Trials.
Oct. 7 ...	Scottish A.C. 100 Miles Run.
Oct. 14 ...	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17	*Quarterly 100 Miles Trials.
Nov. 17-25 ...	Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.	
July 28-Aug. 8	Paris Industrial Vehicles Trials (A.C. France).
July 27 ...	Gaston Menier Cup (Motor Boats).
July 31 ...	Anthony Drexel Cup (Motor Boats).
Aug. 6-7 ...	Circuit des Ardennes.
Aug. 10-11 ...	Paris-Deauville (Electric Vehicles).
Aug. 10-16 ...	Herkomer and Bleichroder Races.

* Automobile Club of Great Britain and Ireland Events and Papers.

Aug. 12 ...	International Cup for Motor Boats.
Aug. 19, 20, 21	Lake Lucerne Motor Boat Meeting.
Sept. 1 ...	Lake Geneva Motor Boat Meeting.
Sept. 2-3 ...	Ventoux Hill Climb.
Sept. 2-10 ...	Brescia Automobile Meeting.
Sept. ...	Tri-Car Competition (L'Auto).
Sept. 10 ...	Vincenzo-Florio Cup.
Sept. ...	Tourist Car Trial (A. C. de France).
Sept. 3-10 ...	Royan Meeting.
Sept. 3-10 ...	Spa Automobile Club.
Sept. 11 ...	British International Cup (Motor Boats Arcachon).
Sept. 19 ...	1/4 Litre Consumption Trials (Motor Cycles).
Sept. ...	Motor Bicycle Race (French Ardennes).
Oct. ...	Vanderbilt Cup.
Oct. 1 ...	Chateau Thierry Hill Climb.
Oct. 15 ...	Gaillon Hill Climb.

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PASSING EVENTS.

Oxinebriation.

ONE of those sprightly writers, the frisking and curvetting of whose pens in the columns of the half-penny daily Press are an ever renewed source of delight to the reading public, has got another theory—a quasi-medical one of course. We are not quite sure whether it is his hundred and nineteenth or his hundred and twentieth new theory, but, like all the others, it is amusing. One writer professes to hold the opinion that speed mania is a special form of intoxication—oxygen-intoxication to wit. Many of us have seen the unkind experiment of putting a blue-bottle fly into a bottle of oxygen, when he buzzes about in a state of wild excitement until he ultimately falls down dead. This has no doubt been observed by the writer to whom we refer. He has also no doubt heard that the same thing occurs to human beings if they inhale the gas in large quantities, and that a mild form of intoxication is experienced by people climbing elevated mountains. Our writer concludes that they are the same thing. As a matter of fact they are the opposite to one another. The mountain intoxication is due to want of oxygen. That, however, is a trifle, and does not at all stand in his way in drawing the conclusion that the reason people drive recklessly on our high roads is that going through the air at high speed in a motor car produces oxygen intoxication in much the same way as climbing mountains does not. The unfortunate part of this argument is that logically one should not become intoxicated until after one has developed high speed, and therefore it is the old familiar fallacy of the cart before the horse. We wish the matter were quite as simple, for then the speed mania could be cured by appropriate dosing, which might be administered in a liquid and even palatable form, and there would be no need for such drastic and unpleasant remedies as proposed by Mr. Soares and others, of clapping the offenders straightway into gaol. It would only be needful to give them something in their tea and they would at once be reformed. We like the idea, and this must be said in favour of it, that nothing has so thoroughly succeeded with ordinary inebriation as suitable dosing.

Tourist Trophy Symposium.

OUR readers who are interested in the Tourist Trophy question—and we trust that this discription applies to them all—will find the concluding instalment of our special article published this week, and followed by the first foretaste of the coming harvest of discussion on this fruitful subject. We anticipated that the discussion which we have opened on this highly important question would be general and representative. But we must admit that the enthusiastic character of the response to our invitation for correspondence, the number of letters we have received, and the extent to which all the leaders in the automobile world have taken part in the discussion, has even exceeded our anticipations. No better proof of the extent to which those who are at present guiding the movement are on the alert as regards everything that can affect its welfare than is supplied by this fact, can be asked for, and no one can desire a better proof of how widely the importance of the Tourist Trophy as a coming national event is recognised.

Our Attitude Not Critical.

FROM some of the letters which we have received, and from more or less informal discussions on the question, we find that there are just a few people who have misunderstood our attitude, and are grasping the situation at the wrong end. We refer to those who imagine that our articles on the subject form a criticism of what has been done already by the A.C.G.B.I., and of the rules which have been promulgated for this year's event. We should have thought it quite unnecessary to point out that this is an absolute misapprehension. On the contrary, we have repeatedly stated, and would again state, that the rules for this year's event as promulgated by the Club form a most admirably well thought out programme for obtaining the objects aimed at.

Never yet was there a scheme promulgated by man which could not be improved upon, and nothing in the nature of a hostile or critical attitude is involved in considering the whole question of racing rules and regulations from an abstract point of view, and pointing out that the conclusions to which such a consideration leads, involve further elaboration of the rules actually proposed. That this consideration naturally leads to the formulation of somewhat different proposals from those that the club has put forward can excite no surprise, particularly when we consider that, so far, the club has only had in view one single class or category of competitors, and that the race this year—for which the existing rules have been drawn up specifically—is bound to be more or less of an experimental character. Some of the letters which we have received for publication show quite plainly that the leading members of the Automobile Club fully understand and appreciate our attitude in the matter.

The Wisdom of an Allied Trade.

THE Institute of British Carriage Manufacturers has always been a progressive institution, and has done its best to march with the times. It is therefore specially appropriate that it should be possessed, in the person of its president, Mr. G. J. Jacobs, of a business head possessing a singularly broad and, at the same time, powerful grasp of the present-day requirements of the industry which his institute represents. For solid wisdom and incisiveness commend us to the presidential address which Mr. Jacobs delivered to this year's annual meeting. For an accurate and carefully considered presentation of the position which the automobile industry, in its various branches, now occupies, and is likely to occupy in the future economic development of the country, we have not seen anything to surpass Mr. Jacobs' presidential address. In fact there are large portions of it which are fully worthy not only of the attention of the carriage builders and other allied industries, but of our legislators and political economists. Mr. Jacobs has the true constructive historic imagination, for he realises that had the motor car obtained anything like its present degree of development before the introduction of railways, it would have proved a much more formidable competitor. Considering the amount of cutting and tunnelling that had to be done for the railways, Mr. Jacobs evidently thinks it is possible that in that case railways might not have developed at all, being replaced instead by automobile road traction. It is an interesting speculation, but in this country there is always a great degree of driving force behind any move

ment that requires enormous capitalisation. The explanation being that once the initial difficulty of capitalisation is overcome, such undertakings have an enormous amount to give away, and can bring such influence to bear in the way of commissions or otherwise, that they are placed in a very advantageous position in competing with possibly more useful but less powerfully-capitalised concerns. We see this sort of thing at the present day very forcibly illustrated by the recent municipal history of the electric tram development, particularly in London.

♦ ♦ ♦
"The Survival of the Fittest" should Triumph.

WHERE Mr. Jacobs deals with the proper attitude that an independent, though allied, industry should adopt towards the new locomotion, his observations are models of common sense and reasonableness. The proper line to adopt, he maintains, is to recognise that the law of the survival of the fittest is inexorable, and that it is the duty of the individual to prevent as far as possible vested interests from causing loss to the community by hampering the natural operation of this beneficent law. From this point of view, the future of the automobile movement is assured, and consequently carriage builders may successfully look to it to supply them with more than a compensation for what they may be losing in the manufacture of horse-drawn carriages. Mr. Jacobs' width of view, and how fully he is entitled to be heard on such a question, may be suitably illustrated by a few of his observations:—

The advantages of the movement are not merely those of offering an alternative means of locomotion, but the up-to-date motor may justly be regarded as embodying a combination of the highest results of modern science and engineering, and there is no doubt that in an indirect way it will assist in advancing or revolutionising other branches of engineering.

And again:—

The fascination of such discoveries as these, and the delight of using the newly-born appliances, have given immense zest to the adoption of the motor, and have also educated the general public to a greater extent in the knowledge of the principles of elementary practical engineering during the last three years, than would have been possible in the same time by any amount of State organised technical instruction.

While his view of the future prospects of the industry, and the rôle it will play in the national life, are well illustrated by the following:—

When the motor car has proved that its existence in such numbers as to encroach seriously on horse traction is a *necessity*, even as a sport, then will the capitalists be found who will do for it what has already been done in far greater measure for coach roads, canals, and railways, by providing suitable tracks for its operation, and this provision will, at the same time, protect the rights and the lives of pedestrian and equestrian travellers on high roads, and relieve them of the hardships of grievously unfair discomforts.

After this it seems to us that Mr. Jacobs is a little timorous in his advice to the members of his profession. He seems to think that they incur some danger should they go too enthusiastically into automobile body manufacturing, and seems rather to dread that the pleasure automobile, with which of course they are chiefly concerned, may prove to be something of the nature of a passing craze, and that ultimately when the novelty of it is worn off society will return *a ces premiers amours*, even though the commercial vehicle may go on and prosper, and go back to the hippomobile. Mr. Jacobs and the other carriage builders may dismiss that fear from their minds. Horses will always be kept, no doubt, for riding and hunting, and even perhaps as pets. But that the day will dawn when the man who has become

accustomed to the extended range of action will voluntarily go back and seek his pleasure in the hippomobile is as likely an event as that we shall live to see the maxim gun abandoned for the cross-bow of our ancestors.

♦ ♦ ♦
A Vision of the future.

AMONGST the things the motor car may do for us in the near future is to depopulate or partially depopulate our towns. This may not sound pleasing, but what it, of course, means is that it may probably have the effect, to a very large extent, of taking back to the land a large proportion of the population that has flocked into the towns for the sake of the greater conveniences and the greater facilities for obtaining work which are, or used to be, there available. This, at any rate, is the view of Mr. F. E. Baines, C.B., formerly leading official of the General Post Office, and his view is of more importance than that of a good many prophets, speculators, or dreamers, because, knowing the work of the Post Office, he is of opinion that the Postmaster-General ought, and might effectively and profitably come to the assistance, of such a movement. This would be done by the Post Office granting a subvention to a motor mail service which could also be arranged to carry passengers. Then Mr. Baines points out that parish councils have also power to contribute a certain amount of money to any scheme which benefits their districts. If the Post Office and the rural councils could be got to join, either with or without external backing, we might see such a passenger service established to a very large number of villages, and then we might witness to a large extent the reversal of the movement which characterised the greater part of the nineteenth century.

♦ ♦ ♦
Pity the Poor Ratepayer.—We have seen no better presentation of the case for the motor 'bus *versus* the tram than is provided in a letter by Mr. Edward Bond to the general press, which we accordingly reproduce in full. Mr. Bond writes as follows:—

Please allow me to call the attention of "The Ratepayers' Conference," recently presided over by the Duke of Norfolk, to the following points:—

Why spend more millions of the ratepayers' money in laying down new tramways when private enterprise is already at work in placing motor 'buses on the streets?

The motor 'bus is a great improvement on the tramcar. It is faster in practice, because it can, in the event of a block, pass off into another route. It is less dangerous to life, and does not ruin the roads by wires or conduits. Tramcars have the following disadvantages:—

1. Their wires, or their conduits, drive away "carriage people," to the serious disadvantage of shops.
2. They are very costly to put down and to maintain.
3. The wires are very liable to come down and kill outside passengers, especially during the winter, when loaded with frozen snow.

If millions must be spent in relieving traffic, let it be done as follows:—

1. In the construction of two great trunk roads running east and west and north and south.
2. In the building of artistic bridges over crossings.
3. In the widening of certain streets.

Here are ample ways of spending more millions, without entering into rivalry with private enterprise.

Comment on the extreme condensation and unanswerable logic of this communication would only weaken it, and we would point out that it amounts to a very drastic condemnation of the report of the Royal Commission on London Traffic, and a very ample justification of the minority opinion held by Sir George Bartley, Sir Joseph Dimsdale, and Sir G. Gibb.

THE BRIGHTON RACE MEETING.

BRIGHTON MOTOR MEETING.—1. The run down to the starting line from where the racing cars were timed for the flying kilometre. 2. The end of the course, where the cars pulled up after passing the winning post.

To organise and to control a motor race meeting extending over four days, and comprising a total of some 375 entries, is a task of no mean magnitude. To do it

successfully is worthy of praise, and this congratulation we have no hesitation in giving to those organising officials of the club who were more directly responsible

1. Mrs. Neville Copland on her 12-h.p. Talbot, and Mrs. Maud Manville on her 35-h.p. Daimler.
2. Miss C. Brown on her 10-h.p. Cupelle, and Mrs. Herbert Lloyd on her 30-h.p. Daimler.
3. Mrs. Guy Hardy ready with her 10-h.p. Panhard.

BRIGHTON MOTOR MEETING.—LADIES' HANDICAP RACE. AT THE STARTING POINT.

for the general success of the meeting. We have already mentioned the important part which the hospitable people of Brighton played in the proceedings prior to the actual meeting, and it is only fair to commend them now for the admirable patience with which they viewed the almost interminable procession of cars on the four eventful days. Some—and there were an even greater number on the second day than on the first—clung lustily to the thin wire fence which borders the track on the seaward side, and there they stayed for a full five hours per *diem* watching the cars go by, occasionally being rewarded by a close finish, at intervals, being gratified by the roar of a racer at speed, and ever and anon finding slight verbal relief in derisively cheering some belated wanderer whose engine refused (either because it couldn't or wouldn't) to move the car at a speed more nearly equal to that of its ill-matched rival. There were others—and in justice to the prosperity of Brighton it must be said they were

in the majority—who occupied seats, which they paid for in advance, on the elevated terrace extending for some three-quarters of the full length of the track. Here those who were lucky enough to obtain seats (for there was, we noticed, a certain disregard for proprietary rights as established by corresponding numbers on tickets and chair-backs) could view the course for a considerable distance, although they, so to speak, looked down on everything that passed.

High up above them all was the energetic secretary, Mr. Orde, who while doing his best to please all men “when on earth,” was in far too exalted a position up in his conning-tower to be a prey to the worries of the unofficial world below. Although so far removed, Mr. Orde could not have been in a better place from which to control the proceedings, he could see the whole track from end to end, and the interior of the tower was fitted up as a veritable telephone exchange, from which wires placed him in touch with every point on the course.

Originally it was intended that no times of any description whatever should be published for the touring cars, but in the end and mainly owing to the endeavours of Mr. H. Massac-Buist whose mind was troubled at the thought of no statistics for the *Morning Post*, the Races Committee came to a compromise and decided to publish the time differences between competing cars. This entailed a certain amount of additional labour for the timekeepers, Messrs. T. H. Wollen, Ebbelwhite, Dutton, and Glazebrook, but they made light work of it, and through the agency of Mr. H. Sturmey the results were in the hands of the Press with an expeditiousness that has not always characterised official announcements on similar occasions. The compromise, while it relieves the club from a virtual declaration of speed, cannot be considered as of any real value to the public, and we merely give the "won by" times in our table of results for what they are worth. The winning car of each event may be taken as having generally done the best average performance throughout, but the second car need not necessarily have

made a meritorious performance at all, and in any case there is nothing to show which car actually did make the best time over the course.

Everything went off so excellently at the Brighton meeting, the management was so good, and the events conducted so absolutely without anything approaching a hitch, that universal regret will be felt that the shadow of a fatal accident has been thrown—not on the meeting itself but upon its near neighbourhood. We refer, of course, to the catastrophe with the 80-h.p. Napier racer, in which Mr. Brown was concerned, on the Newhaven Road. It has really no connection whatever with the Brighton Meeting, and ought not to be allowed to have any influence in regard to such events. The accident might just as well have happened in any other part of the country. Lest, however, the enemy find in it an occasion as usual to blaspheme, we would point out as forcibly as possible that the Automobile Club have discouraged the employment of racing cars at high speeds on ordinary roads, even for testing purposes, and have

1. The three cars in Event 3, Heat 1, on Wednesday, in line for the start. Mr. F. W. Wilkinson's 8-h.p. Stanley steamer (No. 29), Miss E. W. Madeley's 6½-h.p. Cadillac (No. 30), and Mr. M. McCraith's 12-h.p. Leader (No. 31).
2. Event 3, Heat 5, Mr. A. J. Dzw's 9-h.p. Speedwell (No. 41), Capt. W. H. Bennett's 7-9-h.p. Dixi (No. 42), and Mr. E. N. Greaves' 8-h.p. Rover (No. 43).
3. Event 3, Heat 5, Thursday, Mr. E. W. Lewis' 20-h.p. Rover, Mr. H. Gordon's 28-h.p. Wayne, and Mr. H. Carver's 16-h.p. Bridgwater.

BRIGHTON MOTOR MEETING.

BRIGHTON MOTOR MEETING.—Event 6, Heat 4, Thursday. 1. Mr. P. Martin and A. Horden starting on their 30-h.p. Daimlers. 2. Event 2, Heat 5, Mr. Hill on his 12-h.p. Darracq versus Mr. W. D. Fair on his 10-h.p. Cupelle.

passed the most drastic resolutions providing for offences of the kind. No club or association in the world, however powerful and representative, can prevent breaches of its regulations by anyone who is determined to break them.

As to the events themselves they were really very monotonous. Seldom was there a close finish, and only

when the racers passed was there any sense of speed. A match between two touring cars is very exciting when both nearly win, as the Irishman would say, but as witnessed in the Brighton events, the majority of such matches were hopeless *mesalliances*, and the succession of heats degenerated into a kind of disorganised procession.

BRIGHTON MOTOR MEETING.—Secretary Orde's observation tower on the course. In this tower, telephones were connected up to every point of the track, enabling Mr. Orde to keep in touch with all parts. The cars racing are Mr. Sydney Barrett's 18-28-h.p. Mercedes and Mr. D'Arcy Baker's 24-h.p. Fiat. In the corner of the picture we give a snap, by Mr. Frederic Coleman, of Mr. Orde in his conning tower, as seen from below. Mr. F. P. Armstrong and Mrs. Manville are also in this picture.

1. Event 4, Heat 4, Wednesday. Soon after the start (which point can be seen in the distance), Mr. H. O. Hall's 15-h.p. Darracq making the pace against Mr. H. E. Hall's 12-16-h.p. Talbot and Miss A. M. Hind's 18-28-h.p. Gnome.
2. Event 3, Heat 6, Thursday. Mr. Searight's 12-16-h.p. Decauville, a 20-h.p. Winton and Mr. Arnold's 12-14-h.p. Whitlock-Aster.
3. Miss Victoria Godwin on her Ariel Simplex, getting near to the finishing line.
4. Mr. Clifford Bowring winning his race for 15-h.p. White cars. This photograph is by Mr. Frederic Coleman.

BRIGHTON MOTOR MEETING.—THE CARS AT SPEED.

Car v. Cycle.

Perhaps the most interesting event of the whole meeting was the match between Cissac, on his 12-h.p. Peugeot bicycle, and J. E. Hutton, on his 120-h.p. Mercedes car, also a similar match between Rignold, whose machine was similar to Cissac's, and Lee Guinness, who drove his 100-h.p. Darracq.

The tests were held over a standing kilometre, in order to introduce the element of quick starting and acceleration as much as possible. Neither of the cycles got away very well at the start, and both were eventually losers, nevertheless Rignold established a new world's record for motor cycles in this event, and so also did Lee Guinness for racing cars.

There is a great deal in mere speed, and it is curious

1. Mr. A. D. Grigg's 28-h.p. Daimler and Mr. A. Bush's 28-h.p. Daimler.
2. Mr. H. O. Hall's 15-h.p. Darracq (No. 56) versus Mr. W. J. Wright's car of the same type in the final Heat,
Event No. 4, Wednesday.
3. Mr. Ramoisey's 24-h.p. Germain and Mr. Tom Thornycroft's 24-h.p. Thornycroft Car.

BRIGHTON MOTOR MEETING.—Some close finishes.

BRIGHTON MOTOR MEETING.—The Chief Constable, Mr. Gentle, was one of the most important factors contributing to the success of the meeting. To his whole-hearted co-operation, tact, and personal work, must be largely attributed the perfect carrying out of the general arrangements. Either riding or on foot, Mr. Gentle was ever on the alert, personally directing his fine body of men.

BRIGHTON MOTOR MEETING.—Racing Autocycles. Preparing for the final. Cissac and his 12-h.p. Peugeot (No. 5), Barnes and his 10-h.p. Barnes (No. 10).

that the sensation of anything unusual does not—even from the spectacular point of view—become apparent until these speeds are very great indeed. It was a sight worth seeing to witness Earp drive his six-cylinder Napier at over 97 m.p.h., for the machine travels unlike anything else on the road and, without disparagement to other racing cars, it may justly be termed the finest example of a racing car extant.

Had it not been that some derangement took place in the bevel-gear which drives the commutator, Earp would in all probability have been successful in the Flying Kilometer Event for the *Autocar* Challenge Cup. As

it was, however, the result lay between Guinness and Hutton, the former eventually proving the winner, all his times for each of the three tries being better than those of the 120-h.p. Mercedes, which did so well on the second day in the standing mile.

Later in the afternoon, Earp got his car going in good condition again, and essayed to lower the British Flying Kilometer record, which he had put up on Friday. In this he was unsuccessful, but he did actually make exactly the same time of 23 secs.

Racing Car Handicap.

One of the most interesting events was the handicap

BRIGHTON MOTOR MEETING.—Racing Cycles.

1. The start for the final. Cissac, 12-h.p. Peugeot (No. 5), Barnes, 10-h.p. Barnes (No. 10), Collier, 7-h.p. Matchless (No. 14).
2. Cissac crossing the line when making his new world's record.

BRIGHTON MOTOR MEETING.—The racers at the starting end. 1. Mr. Clifford Earp on his 6-cylinder Napier and Mr. Moore Brabazon (90-h.p. Mors) in line. 2. Mr. J. E. Hutton on his 120-h.p. Mercedes waiting for the word to start for the "Daily Mail" Cup. 3. The Mors and Sir Ralph Gore's Mercedes ready for the signal. 4. Miss Dorothy Levitt getting up pace on the 80-h.p. Napier for the "Daily Mail" Cup Race. 5. Mr. Earp on the way for the Flying Kilometre. 6. Mr. Lee Guinness on his 100-h.p. Darracq taking his turn in the "Daily Mail" event.

GORDON-BEN

CE.

The FASTEST of the ENGLISH cars was the Wolseley driven by the Hon. C. S. Rolls, fitted with

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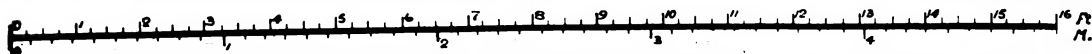
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Telephone: No. 7317 Central.

W. E. PRICE, Esq., 7, Pocklington Walk, Leicester, writes:—

21st June, 1905.

"I thought you would be interested to know of a run I had on the 6 h.p. car purchased from you at the end of March. On Saturday I left my house at Knighton, two miles from Leicester, at 20 minutes to six in the morning, and arrived at Horrabridge, 10 miles the other side of Plymouth, at a quarter to eight in the evening. I did not drive in any way recklessly, and had no trouble with the car whatever. The most surprising part of the performance is, in my opinion, that, whereas I started with $5\frac{1}{4}$ gallons of petrol, there was still a quarter of a gallon left when I reached Exeter, 196 miles from here. You will see that it works out at more than 39 miles per gallon. During my holidays I journeyed altogether over 800 miles without a single mishap or stop for mechanical troubles whatever."



Feet: Metres.—The range of this *Lineal Measurement Scale* is such as to render it useful in comparing English and French dimensions of wheel-base and track. Each division above the line represents 3 inches. Each division below the line represents 0.1 metre.



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STANDARD 15 H.P. CAR

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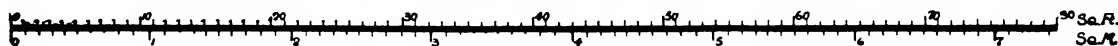
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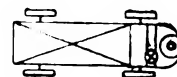
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- Miss Dorothy Levitt finishing on her Napier.
- Mr. Clifford Earp completing his fastest mile on the 8-cylinder Napier.
- Mr. Moore Brabazon driving the 90-h.p. Mors at the finish of the course.
- Sir Ralph Gore, Bart., on his 100-h.p. Mercedes at the finishing tape.

- Mr. J. E. Hutton on his 120-h.p. Mercedes.
- Mr. Lee Guinness about to cross the tape with his 100-h.p. Darracq.
- Mr. Theodore Schneider on the 100-h.p. Rochet-Schneider.
- Mr. Moore Brabazon on the 90-h.p. Mors at the finish.

BRIGHTON MOTOR MEETING.—THE RACERS (see page 925 for photographs).

Results in Tourist Car Section.

Entrant and Car.	Won by*				
	secs.	secs.	secs.	secs.	secs.

Cars up to £200.

E. W. Lewis' 8-h.p. Rover	9½	1	2½		
F. Wilkinson's 8-h.p. Stanley (Steam)	19½	1			
Spencer Downing's 10-h.p. Allday	10				
E. N. Greaves' 8-h.p. Rover	14½				
J. C. Madeley's 8-h.p. Cadillac	9				
W. H. Tribe's 6-h.p. Peugeot	2½				

Cars priced £200 to £350.

J. W. Adams' 10-h.p. Humber	32½	15½	8½		
C. S. Rolls' 14-h.p. Minerva	0	9½			
A. J. Dew's 10-h.p. Speedwell	21½				
L. Russell's 10 h.p. Star	6				
W. Whiteway's 14-h.p. Regal	9½				
M. Hawnt's 10-h.p. Motobloc	16				

Chassis, price £300 to £400.

E. W. Lewis' 20-h.p. Rover	4½	4½	2½		
J. Keel's 16-h.p. Spyker	2½	3½			
J. P. Searight's 16-h.p. Decauville	15½	9			
F. Lanchester's 12-h.p. Lanchester	9½				
F. Churchill's 14-h.p. Hallamshire	6½				
A. F. King's 24-h.p. Mass	10½				

Chassis, price £400 to £500.

J. Keel's 15-h.p. Darracq	3½	4½	3½	1½	
J. Keel's 15-h.p. Darracq	B	18½	7½		
F. Coleman's 15-h.p. White (Steam)	12	½			
A. Rawlinson's 15-h.p. Darracq	3½	F.L.			
H. O. Hall's 15-h.p. Darracq	5½	½			
W. Rose's 18-h.p. National	3½	½			
J. A. Lloyd's 15-h.p. Darracq	40½				
W. J. Wright's 15-h.p. Darracq	9½				
C. E. Steut's 15-h.p. White (Steam)	3½				
Malcolm Brooke's 20-h.p. Malcolm	7½				
W. H. Astell's 15-h.p. Orleans	14½				
H. Kennedy's 15-h.p. Darracq	25½				

Chassis, price £500 to £600.

H. B. Nearn's 30-h.p. Darracq	B	B	11½	1	4½
F. F. Wellington's 28-h.p. Spyker	2½	B	F.L.	39	
J. E. Lound's 24 h.p. Beaufort	13½	11½	O		
T. B. Brown's 18-h.p. James and Brown	8	7½			
C. Gray's 24-h.p. Decauville	8				
Capt. E. D. Townsley's 30-h.p. Darracq	2½				

Chassis, price £600 to £700.

J. McDonnell's 28-h.p. Daimler	B	6½	7	3½	3½
J. E. Lound's 35-h.p. Beaufort	B	2½	B	1½	
E. P. Prestwich's 28-h.p. Daimler	B	28½	1½		
J. C. Wilson's 28-h.p. Daimler	14	B	F.L.		
A. D. Grigg's 28-h.p. Daimler	5½	½			
W. H. Tribe's 18-h.p. Peugeot	5½				
Capt. Théo. Masui's 24-h.p. Germain	O				
R. W. R. Gill's 28-h.p. Daimler	46½				

Chassis, price £700 to £800.

G. H. Warne's 28-h.p. Daimler	1½	15	½	1½	
Miss V. Godwin's 30-h.p. Ariel	17½	12½	B		
E. E. Clarke's 24-h.p. Fiat	B	3			

Chassis, price £800 to £900.

Percy Martin's 30-h.p. Daimler	O	4½	4½	15½	
E. M. C. Instone's 30-h.p. Daimler	½	B	B		
Mrs. Herbert Lloyd's 30-h.p. Daimler	1	5			
J. T. Clifton's 30-h.p. Daimler	27½				

15-h.p. Darracq Cars.

H. Kennedy	5½				
H. E. Hall	7				
J. Keel	6½				

30-h.p. Daimler Cars.

J. M. Gorham	9½	B	ot		
A. Horden	B	1			
J. T. Clifton	4				

35-h.p. Daimler Cars.

Mrs. Manville	B	½	4½		
Hon. J. S. Montague	3½	B			
Chas. Hardy	1½				

15-h.p. Orleans Cars.

W. H. Astell	1½	16			
T. Jenner	B				

15-h.p. White Steam Cars.

C. Bowring	B	10½			
A. J. Walter	½				

Ladies' Handicap.

Mrs. H. Lloyd's 30-h.p. Daimler	Strt.	18	20½	1½	10
Mrs. M. Manville's 35-h.p. Daimler	scr.	26	B		

Handicap Sweepstake.

Open to Competitors in any of the Standard Car Events.

Capt. F. D. Lyons' 7-h.p. Panhard	Strt.	121	32	17½	24½	15½
G. H. Warne's 28-h.p. Daimler	22	1½	3½	4½		
H. Kennedy's 15-h.p. Darracq	34	3½	6½			
U. Stratton's 30-h.p. Daimler	11	37	3			
J. Keel's 15-h.p. Darracq	26	5½				
A. Salmon's 5-h.p. Peugeot	80	8½				
A. D. Grigg's 28-h.p. Daimler	25	1				

Handicap Sweepstake.

Open to cars which ran in any touring events, other than for Standard Types.

Capt. Théo. Masui's 24-h.p. Germain	Strt.	20	2½	3½	3½	0½
J. E. Lound's 24-h.p. Beaufort	22	3½	5½	3½		
G. W. Honk's 30-h.p. Ariel	21	2½	5			
J. C. Wilson's 28-h.p. Daimler	10	1½	1½			
H. Kennedy's 15-h.p. Darracq	34	21	10½			
Miss V. Godwin's 30-h.p. Ariel	13	F.L.	3½			
F. S. Bennett's 8½-h.p. Cadillac	42	2½				
Mrs. H. Lloyd's 30-h.p. Daimler	2	30½				
T. B. Brown's 18-h.p. James and Brown	30	16½				
T. Underwood's 18-h.p. Gnome	40	½				
L. Beadle's 12-h.p. Regal	42	5				
A. J. Dew's 10-h.p. Speedwell	40	0				
B. André's 20-h.p. Bridgwater	26	0				
L. Coatalen's 8-h.p. C. Humber	21	3½				
C. S. Rolls' 15-h.p. Minerva	29	9½				
E. M. C. Instone's 30-h.p. Daimler	Scr.	26½				
O. Thompson's 18-h.p. Siddeley	40	7½				
R. Lascelles' 20-h.p. Simms	20	27½				
A. H. Walker's 15-h.p. Darracq	23	27				

Touring Cycle Section.

Handicap.

W. W. Genn's Minerva	Strt.	Scr.	B	5½	
F. W. Applebee's Rex	10	9½			
A. E. Lowe's J.A.P.	5	4			
T. G. Hetherington's Riley	15	12			

Racing Cycle Section.

H. Cissac's 12-h.p. Peugeot	—	53½	49½	†	
G. A. Barnes' 10-h.p. Barnes	—	63½	69½		
C. R. Collier's 7-h.p. Matchless	—	64½	104½		
H. Rignold's 12-h.p. Peugeot	—	57½			
H. A. Collier's 6-h.p. Matchless	—	70½			
T. Jones's 8-h.p. Peugeot	—	83½			
A. Westlake's 6-h.p. Westlake	—	85			
E. Varney	—	89½			

* Only the differences between the actual times of the winner and his losing opponent are available, and these are given for each successive heat in the above table. Losers of the first heat are not included. Time differences less than ½ sec. are given as zero.

B = bye.
† Won prize.

‡ Actual times are given for the racing cycle, but the distance is about 80 yards short of a mile.

§ Handicap allowance altered for final. Winners agree to divide prize money rather than run over again.

Photo by Mr. Frederic Coleman.

BRIGHTON MOTOR MEETING.—Miss Dorothy Levitt, on her 80-h.p. Napier, winning, in the Sweepstake Handicap for Racing Cars, against Mr. Moore Brabazon on his 90-h.p. Mors.

RESULTS IN RACING CAR SECTION.

* Distance covered was about 80 yards short of a mile.

† Winning times which secured the cups.

‡ Earp's time of 23 secs. for the flying kilometre constitutes a new English record.

Photo by Mr. Frederic Coleman.

BRIGHTON MOTOR MEETING.—The Hybrid Matches. Cycle v. racing car. Mr. J. E. Hutton on his 120-h.p. Mercedes v. Cissac, and Mr. Lee Guinness on his 100-h.p. Darracq v. Rignold.

for racing cars—an event rendered all the more popular by the victory of Miss D. Levitt on the 80-h.p. Napier. Both the heats in which Miss Levitt took part were decidedly the most interesting of this event, for in the first she beat Mr. Moore-Brabazon by four-fifths of a second, and, when running against Sir Ralph Gore, her car passed the line with $1\frac{3}{4}$ secs. to spare.

Much disappointment was felt at the non-appearance of Mr. Charles Jarrott with his De Dietrich racing car, and no one, it appears, was more disappointed over this than himself, for we hear from him that Messrs. De Dietrich and Co., having entered the car for the Circuit des Ardennes—together with the other two cars, which were entered for the Gordon-Bennett—found that time would not permit them to spare Duray's machine for Mr. Jarrott's use.

Mr. Victor Miller was another disappointed entrant for the racing section, his 100-h.p. Fiat—from which much was expected in view of the splendid performance of the Fiat cars on the Auvergne Circuit—not having arrived in England in time for the event. The 150-h.p. Dufaux driven by the Hon. C. S. Rolls was only completed on board the boat which brought it to England, and not unnaturally Mr. Rolls found it impossible to get it tuned up properly for the event.

Cissac and Rignold, on their racing motor cycles, were second only to Earp and Hutton in the interest which they aroused by their sensational performances, but, of the two, Cissac's manner of riding his machine was the more impressive. Both competitors used 12-h.p. Peugeot machines, but Cissac had actually the most powerful engine. These bicycles weighed only 110 lbs., and 40 per cent. of this was utilised in the engine. Frame and spokes were cut to the finest degree, so that any sudden swerve from the true course would inevitably buckle the whole machine, which is merely designed for sprint racing, and would, of course, be useless for an international circuit event. Cissac and Rignold were both delighted at having lowered the world's records, and the latter expressed confidence in being able to still further improve his time at Blackpool, after he has slightly altered the gearing of his machine, which is now about 2:1. Another 12-h.p. Peugeot was entered by an amateur rider, Mr. O. L. Bickford, but unfortunately the wheel collapsed during a trial spin over the course, and Mr. Bickford—who was happily unhurt—was unable to get a new wheel fitted in time for the event. The difficulty of getting such powerful machines under way without breaking the driving wheel is very great indeed, and Mr. Bickford's gear was, we understand, even higher than those of Cissac and Rignold, representing about 100 m.p.h. at normal engine speed.

An event in which ladies are actually the competitors is always an attraction, and the Ladies' Handicap on Friday afternoon proved no exception to the rule. All the ladies who took part are well known in the automobile world, especially Mrs. Herbert Lloyd, who won the event, and Mrs. Manville, who was second. In winning, Mrs. Lloyd secured a fan presented by the London, Brighton and South Coast Railway, while Mrs. Manville was awarded a Cup which had been presented by her successful rival competitor.

Considerable difficulty was naturally experienced in handicapping so many different cars as those entered for the other handicap events—more especially as some of them had not actually competed in the other races.

Among the touring cars, there was one very noticeable feature, namely, the extraordinary number of Daimler

cars and 15-h.p. Darracqs which were in evidence, but not only were they great in numbers but great in deeds also. It is quite true that there were not over many close finishes, but those which took place were well worth watching. The most startling finish of the whole meeting was undoubtedly the one made by a 15-h.p. White steam car in one of the heats on the first day. The White was actually behind until just before the finish, when suddenly, with a turn of the throttle-valve, the car shot forward and won the heat in "real sporting" style.

Another good race was that between Mr. F. F. Wellington, on a 20-h.p. Spyker, and Mr. Sharp, on a 20-h.p. Thornycroft, while in another heat of the same event Mr. Tom Thornycroft almost ran a dead heat with Mr. H. Ramoisy, who was driving Capt. Masui's 24-h.p. Germain. It is a curious coincidence, which has not passed remark, that these two well-known motorists are always being drawn against one another for first heats, and there is no question but that they always give the public an exciting finish, which is more worthy of a final than a mere heat.

The idea of having separate events for standard types of touring cars was popular, and it demonstrated how much difference may exist in similar cars when controlled by dissimilar drivers. On the first day, there was an event for 15-h.p. Darracq cars, and, in the first round, as much as 6 and 7 secs. divided the heat winners from their unsuccessful competitors. Two similar "standard car" events took place for 30 and 35-h.p. Daimler cars on the first and third days respectively, but it is difficult to dissociate these particular events from two others—unreserved—which took place on the second day, when out of 17 and 11 entries respectively, 5 and 8 of the cars entered in the two events were Daimlers. Some really close finishes were witnessed in these inter-Daimler events, and Mr. Anthony Horden is to be congratulated on the very close running which he made, first against Mr. J. M. Gorham and then against Mr. Percy Martin, only losing both events by a mere half length. In competition with Mr. G. M. C. Instone, Mr. J. M. Gorham was himself beaten by less than a second, and in the race between 35-h.p. Daimlers, Mrs. Manville won the semi-final against Mr. Chas. Hardy by only $\frac{2}{3}$ sec.

Among other lady drivers who took part in the racing were Miss A. M. Hind, who drives an 18-28-h.p. Gnome, and Miss Victoria Godwin, who made some excellent runs with the new 30-35-h.p. Ariel-Simplex, with which she only missed securing the cup, in the fourth and final round, by four-fifths of a second. Miss Dorothy Levitt was not in evidence in the touring class events, but her new rôle was admirably performed on the 80-h.p. Napier racer, on which her clever manipulation was a source of considerable admiration.

New Records.

Standing Kilometre (World's Record).

Lee Guinness... 100-h.p. Darracq ... 35 $\frac{1}{2}$ secs. = 62'48 m.p.h.

Flying Kilometre (British Record).

C. Earp ... 90-h.p. Napier (6-cyl.) 23 secs. = 97'25 m.p.h.

New World's Motor Cycle Records.

Standing Mile.

Cissac ... 12-h.p. Peugeot ... 53 $\frac{1}{2}$ secs. = 67'7 m.p.h.

Flying Mile.

Rignold ... 12-h.p. Peugeot ... 46 $\frac{1}{2}$ secs. = 71'0 m.p.h.

Flying Kilometre.

Cissac ... 12-h.p. Peugeot ... 26 secs. = 85'98 m.p.h.

Standing Kilometre.

Rignold ... 12-h.p. Peugeot ... 36 $\frac{1}{2}$ secs. = 61'79 m.p.h.

THE 1905 DE DIETRICH CARS.—PART V.

The Change-Speed-Gear.

IN Figs. 18, 19, and 20, the change-speed-gear, and the manner in which the gear-box is fixed to the chassis, are very clearly shown. The box is made in two parts, the upper (M) of which has a large inspection-door, M¹, and the lower (M²) is secured to the cross-tubes, S¹. The casting, M², is only fixed rigidly to the one cross-tube when the upper casting, M, is tightened down upon

shafts—runs in ball-bearings, has four keys formed solid with it, for the spur-wheels to slide upon, and all the four wheels are secured together so as to move in unison. They are controlled in much the usual way, by an engaging fork which is fixed to the rod, M⁶, and this rod is connected to the sleeve, M⁷ (to which the gear-lever is fixed) by the rod, M⁷. The second-motion-shaft, N, has a hardened steel thrust block, N¹, at its front end, to take the thrust of its bevel-pinion, and there is a ball-thrust-bearing behind the large bevel-wheel on the differential countershaft. A special feature of the countershaft is that universal joints, N⁴, are introduced into both ends, so that no distortions of the main frame can have any detrimental effect on the differential-gear, N³, or on the gear-box.

The "reverse" gear consists of the two intermediate spur-wheels, N², which lie beneath the first-motion-shaft, N⁵, these wheels being brought into mesh with the "first-speed" wheels on the two main shafts by the sliding sleeve on the shaft, M⁵. The wheel on the first-motion-shaft comes into mesh with one of the intermediate wheels, N², when the gear-lever is moved into its neutral notch, and the effect of moving the lever into the "reverse" notch is to make the "fourth speed" wheel slide the other wheel, N², into gear with the large wheel on the shaft, N. A spring tends to press the wheels, N², rearwardly. The sprockets on the ends of the countershaft

are fitted in such a way that they can be quickly changed at any time.

The Brakes.

The foot-brake, which is operated by the pedal, P, acts upon the drum, P¹, that lies just outside the gear-box and is solid with the shell of the differential-gear. The brake-shoes, P², which are normally held apart by the two springs, P³, are forced up together, to grip the

Fig. 18.—View of the De Dietrich Change-Speed-Gear in place in the chassis. In this illustration, which shows the mechanism from above, the upper portion of the gear-box has been removed.

it, but it has a projecting lug, M³, which rests upon that tube and serves to support it when the gear-box is dismantled. At the front end, the two forgings, M⁴, are secured to the casting, M², and these in turn are bolted up from underneath to two brackets on the other cross-tube, S¹. This method of fixing not only renders it very easy to "line up" the gear properly in the chassis, but facilitates the removal of the mechanism, intact or in parts. The first-motion-shaft, M⁵, which—like the other

Fig. 19.—On the left is a view showing the rear portion of the gear-box in place, in the De Dietrich Chassis, with the foot-operated brake-band removed from the brake-drum on the counter-shaft. On the right, the differential countershaft is shown separately, and the brake-band is seen lying beneath it.

Fig. 20.—View (from above) of the front portion of the 24-h.p. De Dietrich Chassis, with the dashboard removed; showing the complete gear-box in place, and the compensating device for the hub-brakes alongside it.

The hub brakes, which are operated by the rock-shaft, Q , to which the hand lever is fixed, can be interconnected if desired with the main clutch by means of the rod, Q^1 . They are compensated in their action by means of the swinging link, Q^2 , the ends of which are coupled up with two independent rock-shafts that in turn are connected

Fig. 21.—Interior view of one of the expanding hub-brakes on the De Dietrich Chassis; the road wheel, together with its brake-drum and chain-wheel, has been taken off.

drum, by the rod, P^3 , and a very powerful toggle mechanism renders the brake extremely effective. No less than three adjustments are available for enabling any wear of the metal friction-faces to be taken up, though as a rule it is only necessary to tighten the nut, P^6 , for this purpose, an operation that can be done by hand without the use of any tool. The other adjustments are for properly centring the shoes about the drum, both when the brake is "off" and also when it is "on." The fulcrum-pin, P^4 , is turned eccentric for this purpose, and thus it is only necessary to partially rotate it about its axis before clamping it down between the caps, P^7 , and the forging that forms the lower portion of these clips. The other adjustment referred to consists of a set-screw (not visible), which is screwed into the under-side of the lower shoe, P^2 , and forms an adjustable stop for it.

Fig. 23.—View of the De Dietrich steering-gear, dismantled to show the internal construction.

Fig. 22.—The De Dietrich steering-gear, complete with its pillar and wheel.

with the brakes. The spring, Q^3 , is fitted between the compensating link, Q^2 , and the cross tube, S^1 , of the frame, and the two rock-shafts are supported at their ends by the brackets, Q^4 .

In Fig. 21, the construction of the brakes themselves is very clearly shown, and it is worthy of notice that although the internal parts are rendered dust proof, yet access can be obtained to them at any time by merely taking off the road wheel. The rod, Q^6 , is that which passes from the compensated rock-shaft already mentioned, and it is hinged to a lever arm that projects from the same shaft as that to which the cam, R^5 , is fixed.

The expanding brake-ring, R , is normally held up against the stationary circular guide, R^2 , by the four springs, R^3 , and it is prevented from rotating in either direction by the stop-block, R^1 . Connecting the two ends of the rings together are the toggle links, R^4 , which naturally cause the ring to expand when the cam, R^5 , presses against the pin to which both are hinged. The stationary guide, R^2 , not only serves for holding the ring clear of the brake-drum, but it also tends to prevent any excess of oil from finding its way from the axle on to the brake surfaces.

The Steering Gear.

Fig. 23 clearly demonstrates the construction of the steering gear, for in this illustration the two portions of the containing casing, T , have been taken apart, and the triple-threaded worm, T^1 , is shown with the nut, T^2 , only partly screwed over it. Beneath the worm, T^1 , is an adjustable ball-bearing, T^6 , by which all end play can be taken up, and, formed solid with the nut, T^2 , are a pair of toothed racks which mesh with the corresponding segments on either side of the lever-arm, T^3 . This lever-arm, together with its segments, is mounted upon an eccentric pin, T^4 , which not only forms a stationary bearing surface for it, but enables the segments to be brought properly into mesh with the toothed racks. The pin, T^4 , can itself be locked tightly to the casing, T^1 , in any required position, for there are a series of holes in the flange, T^5 , at its inner end, and the locking set-screw can pass through either of them. Owing to the fact that the lever-arm, T^3 , does not overhang, and that any back-lash can be taken up when required, this steering gear is of an unusual strong and durable character.

Table of Reference Letters for the 24-h.p. De Dietrich Car Illustrations.

A Petrol tank.	E ⁴ Lever-arm at base of steering pillar.	J ⁶ Engagement pins on the sliding rod.	N ² Intermediate wheels for reverse gear.
A ¹ Auxiliary tank on dash.	E ⁵ Timing lever.	J ⁷ Lever arms controlling throttle-valve.	N ³ Differential gear.
A ² Main fuel cock.	E ⁶ Magneto.	K Throttle lever above wheel.	N ⁴ Universal joints for countershaft.
A ³ Air cock on A ¹ .	E ⁷ Driving-shaft for same.	K ¹ Lever arm at base of steering-pillar.	P Brake-pedal.
A ⁴ Float-feed-chamber.	F ¹ Upper crank-chamber casting.	K ² Accelerator pedal.	P ¹ Brake-drum on countershaft.
A ⁵ Agitator.	F ² Detachable doors.	K ³ Spring for same.	P ² Brake-shoes.
A ⁶ Spray jet.	F ³ Crank-shaft.	K ⁴ Rod connecting pedal with throttle mechanism.	P ³ Rod operating brake.
A ⁷ Detachable valve seat and filter.	F ⁴ Fan flywheel.	K ⁵ Rock-shaft operated by clutch-pedal.	P ⁴ Eccentric fulcrum pin.
A ⁸ Plug bent ath jet.	F ⁵ Ball-thrust-bearing on same.	K ⁶ Roller carried on same.	P ⁵ Springs.
A ⁹ Exhaust relief lever.	F ⁶ Spur-wheel driving cam-shafts.	K ⁷ Spring for rock-shaft.	P ⁶ Adjustment screw.
B Exhaust box.	F ⁷ Intermediate spur-wheel.	K ⁸ Rod connecting rock-shaft with throttle mechanism.	P ⁷ Caps for fulcrum pin.
B ¹ Exhaust pipe fitting.	F ⁸ Clutch for starting handle.	L Clutch-pedal.	Q Rock-shaft for hub brakes.
B ² Inspection plugs above exhaust-valves.	G Circulating pump.	L ¹ Clutch-spring.	Q ¹ Inter-connecting rod for clutch.
B ³ Push-rods for exhaust-valves.	G ¹ Sprocket on same.	L ² Lever arm carrying clutch-pedal.	Q ² Compensating link.
B ⁴ Exhaust-cams.	G ² Chain-wheel on crank-shaft.	L ³ Arms operating clutch.	Q ³ Brake-spring.
B ⁵ Rock-shafts for sliding half compression cams.	G ³ Delivery-pipe to jack-ts.	L ⁴ Forked forging engaging thrust collar.	Q ⁴ Brackets carrying individual rock-shafts.
B ⁶ Pivoted lever operating same.	G ⁴ Return pipe from jackets.	L ⁵ Leather-faced clutch-cone.	Q ⁵ Rods actuating brakes.
B ⁷ Pressure-valve for petrol and oil supplies.	G ⁵ Fan.	L ⁶ Hollow clutch-shaft.	R Expanding brake-ring.
C Induction pipe fittings.	G ⁶ Pulley on crank-shaft for same.	L ⁷ Driving pins on same.	R ¹ Thrust-block for same.
C ¹ Induction pipes.	G ⁷ Belt-tightening spring.	L ⁸ Universal joint forging.	R ² Stationary guide-ring.
C ² Plungers operating inlet-valves.	G ⁸ Drain cocks for jack-ts.	L ⁹ Propeller shaft to gear-box.	R ³ Springs for contracting brake-ring.
C ³ Pivoted levers for ditto.	H Pressure tank for lubricating oil.	M Upper half of gear-box.	R ⁴ Toggles for expanding same.
C ⁴ Push-rods for same.	H ¹ Mechanical lubricator on dash.	M ¹ Inspection cover.	R ⁵ Cam arm acting on toggle links.
C ⁵ Induction-valves.	H ² Auxiliary hand pump.	M ² Lower gear-box casting.	S Adjustable radius rods.
C ⁶ Inlet cams.	H ³ Feed-pipe to engine.	M ³ Projecting lug at rear.	S ¹ Transverse tubes supporting gear-box.
D Igniters.	H ⁴ Sight feed glass.	M ⁴ Projecting forgings in front.	S ² Sprag.
D ¹ Rocking contact arms.	H ⁵ Branched feed-pipe.	M ⁵ First-motion-shaft.	T Casing for steering-gear.
D ² Springs.	H ⁶ Lubricator over central bearing.	M ⁶ Sliding rod operating gear.	T ¹ Worm fixed to steering wheel.
D ³ Insulated contact blocks.	H ⁷ Vent cocks in cylinder heads.	M ⁷ Connecting-rod actuating same.	T ² Nut with toothed racks.
D ⁴ Rotary switches for igniters.	J Main air inlet.	M ⁸ Rock-sleeve fixed to gear lever.	T ³ Lever arm with toothed sectors.
D ⁵ Contact blades for same.	J ² Auxiliary air inlets.	N Second-motion-shaft.	T ⁴ Eccentric fulcrum pin.
D ⁶ Switch on dashboard.	J ³ Sliding valve sleeve.	N ¹ Thrust-block for same.	T ⁵ Adjustment flange for same.
E Operating rods.	J ⁴ Adjustable stop.		T ⁶ Adjustable ball-bearing.
E ¹ Ignition cam-shaft.	J ⁵ Pivoted lever operating throttle-valve.		
E ² Rock-shaft for timing gear.			
E ³ Rod operating same.			

A Sussex Magistrate gives Sound Advice.—We have often observed that, with the extension of the automobile movement, magistrates would ultimately become automobilists, and prejudice would die out. We have already had occasion to draw attention to the very sensible remarks made by a member of the Guildford Bench on the subject of the unfair prosecution of motorists, and the vindictive convictions with which that Bench is specially associated. And now a Sussex magistrate—Mr. E. M. Crookshank, of East Grinstead—has stepped into the rostrum and made some very sensible observations on the general situation. In Mr. Crookshank's opinion the great motor car industry has come to stay, and with a large number of unemployed about the growth of the new industry is of the highest importance to the country. There is no limit, in his

opinion, to the possibilities of motor vehicles in dealing with agricultural produce and fruit. A great deal was said about going back to the land; but his view was that a great deal would also be learned about the true meaning of going back to the roads. Mr. Crookshank is in favour of the French method of restricting speed at corners, through villages, towns, and dangerous places, and letting people go as they like in the open country; but, as a motorist of experience, he recognises that children are the great terror of the motor car driver; and he thinks it would be a good plan if the teachers in elementary schools were to point out to children generally how dangerous it is to get in front of approaching cars, as they often do, and how difficult it is to estimate the speed at which they are approaching.

THE BARTON-RAWSON AIRSHIP.

Willing helpers hauling out the huge airship from its lair.

The airship half out of its shed. The helpers steadying the hull during the process of "trimming up."

BARTON-RAWSON AIRSHIP.

IT was with very keen interest that we journeyed to the Alexandra Palace on Saturday last to attend the first—and, as it has proved, the last—public performance of the Barton-Rawson airship, which, as everyone knows, has been under construction and completion for a very long time. The airship had gone up on the previous Wednesday, making a circuit of the Palace grounds (a sort of "*voyage autour de ma chambre*") and this experiment proved so satisfactory that it was determined to give the great construction a day, or, at any rate, afternoon, out on Saturday.

Since our last description of the Barton airship it has

undergone many modifications. Its general appearance remains the same, but the propellers have been reduced in size to 7 ft. in diameter, and their speed has been increased from 140 to 1,000 revs. per min. The clutches and gear-down between the 50-h.p. motors and the propellers have also been abandoned, and the motors now drive the propellers directly by belts. The aeroplanes, too, which were a feature of the original construction, have on account of weight also been practically abandoned. We say *practically*, since they have been replaced by comparatively insignificant constructions of canvas, which, considering the general size of the air-

BARTON-RAWSON AIRSHIP.—The airship, immediately after its release, clearing the trees while passing into the higher atmosphere.

BARTON-RAWSON AIRSHIP.—Ready for flight. Mr. Rawson is in his place on the right. Dr. Barton (with his son) is at his post to the left.

ship, could not be expected to produce much practical effect.

Originally—when described and illustrated by us on November 14th, 1903—there were three pairs of propellers, each propeller consisting of three 2-bladed fans 12 feet in diameter, and there were to be three motors of 50-h.p. each. The propellers were, moreover, driven at low-speed through 8 to 1 gearing, introduced between the crankshafts and the belt-driving pulleys. Later—when fully dealt with again in our columns on July 9th, 1904—the central motor with its two propellers had been abandoned, but it was only comparatively recently that the small high-speed propellers were substituted. Until lately, also, there were no less than 30 aeroplanes fitted between the deck and the top of the framework, these being arranged in three banks, each bank having two sets of five, mounted “venetian-blind fashion”; each aeroplane had an area of 45 square feet—a very different matter in comparison with the latest small affairs. Another device that was also abandoned, when remodelling the ship, was that for maintaining a level keel, by means of ballast tanks at each end, and a pump for displacing the water from one to the other. As will be remembered, the “hull” is made of bamboo, and its length is 127 feet. The balloon is 180 feet long by 40 feet in diameter, the capacity being about 200,000 cubic feet, and the total weight of the ship is about 14,000 lbs. ($6\frac{1}{4}$ tons); taking the lifting power of pure hydrogen in air as being .074 lbs. per cubic foot, the balloon would be capable of raising a weight of 14,800 lbs.

Among the other notable alterations should be included the modification in the name by which this British “Clipper of the Clouds” is now designated. Formerly it was the Barton airship. Now it is the “Barton-Rawson.”

There was a large attendance of spectators at the Alexandra Palace on Saturday, filling the special enclosures that had been arranged for them, and extending not only over the grounds of the

Palace itself but along all the roads and points of vantage in the neighbourhood, most of the available house roofs also being provided with interested contingents. The public appearance of the airship was preceded by a function held inside the shed which has formed its refuge for so long a period. The great gas vessel was of course fully inflated, but getting the airship out into the open was a service of no small difficulty. Strictly speaking, it was too big for the shed, and a trench had been cut in the ground to more or less effectually accommodate the keel. While being pulled outwards by the ropes, the bamboo framework of the hull suffered somewhat in consequence, and while being held steady by numerous enthusiastic spectators and assistants outside, there was a good deal of snapping among the fine cords by which the hull is suspended from the gas-vessel, owing probably to the abnormal strains set up by the oscillations which occurred between the gas-vessel itself and the hull, and by the flexibility of both.

We had an opportunity of inspecting the behaviour of the four new smaller propellers while examining the airship before the start was made. They form a departure in aeronautic propeller construction, being made entirely of light wood. When revolved at normal speed there was an unusually distinct difference between the suction produced on the front side and the draught induced on the opposite side. Apparently they drew in the air from over a very large area, and thus enabled it to find its way to them at a low velocity, whereas, on the other hand, the air was forced astern by them in a compact column that travelled at a fairly high rate of speed in consequence. One of our illustrations well shows their appearance and arrangement, besides enabling—when compared with the very complete set of views given by us formerly—the general nature of the recent modifications in construction to be realised.

Soon after the appointed hour, the great machine was led out of the shed and held by a regular army of

BARTON-RAWSON AIRSHIP.—The ship in its shed, showing one of the new propellers and one of the new shaped aeroplanes.

Dr. Barton, Mrs. and Miss Barton in the balloon shed before the ascent.

The balloon in full, free flight.

BARTON-RAWSON AIRSHIP.

assistants, mostly volunteers from among the spectators, and about an hour later she was let go, and soared immediately, and with a certain stateliness, to a considerable elevation. The car was occupied by Mr. Barton, who was on what may be called the main bridge forward (where he had the bow engine under his control), by Mr. F. L. Rawson, who was in command, by Mr. A. Gaudron, and by Mr. Henry Spencer, who manipulated the stern motor. As soon as the vessel commenced to rise, Dr. Barton started the forward motor, the two front propellers, of course, revolving with it, and subsequently Mr. Spencer succeeded in getting his machine in action. There was a distinct breeze blowing, about the force of which a good deal of difference of opinion has prevailed.

The airship started facing the wind, but, by the time she had reached an altitude of about 500 feet, it was evident that she could make no headway, or even hold her own, against it. She was then steered round, and ran before it for some little time, while still rising, before being brought round once more to fight against it. For a time she endeavoured to return to the starting-point, but it was evident that the wind was too much for her, and soon her pilot, abandoning the contest, allowed her gradually to swing round, and she drifted away towards the east, more or less broadside on, attempting to proceed across the wind, and in this manner ultimately disappeared from view.

At one time descending, but soon after rising in the air till an altitude of about 2,400 feet or thereabouts was reached, the airship gradually approached Romford, in Essex, where she was ultimately brought down with great success by M. Gaudron in a potato field near Heaton Grange. A garden party was in progress at the Grange, and the sudden descent of the airship upon the scene provided an unlooked for diversion for the guests, of which they were not slow to take advantage. The airship was quickly surrounded, and Dr. Barton, who

was in the bow, was immediately the centre of an admiring throng of ladies, who heartily and even enthusiastically showered upon him feminine congratulations on his plucky and adventurous achievement. And that was the cause of the trouble. Both Mr. Rawson and M. Gaudron were conscious that they too had bravely "adventured" as much as Dr. Barton, and forward they moved to join him at the bow and to share in the congratulations. The balance of the airship was upset. The rear portion began to rise up, and the gas tending to accumulate at the highest portion of the gas-vessel increased the mischief. In fact, the airship was proceeding to stand upon her head, and in this way to eject Dr. Barton and Messrs. Rawson and Gaudron into the centre of their admirers, Mr. Spencer alone being left in the stern, and in danger of soaring away with the liberated airship into the blue beyond. Without wasting an instant, Mr. Spencer, with great presence of mind, grasped the "ripping-gear," and tore up the gas-vessel, the hydrogen issuing from the rent balloon with a roar. Down came the airship, the gas-vessel, of course, completely wrecked, the frame a good deal damaged, but the motors alone escaping without injury. The adventurous experimenters ultimately extricated themselves from the *débris*, and were so much elated at finding themselves safe and sound that they hardly felt the destruction of their airship. In fact, it is satisfactory to learn that Dr. Barton did not intend using the airship further even had she completely escaped injury.

It is plain to everyone that the airship's power of propulsion was wholly inadequate to enable it to proceed against even a moderate breeze, and Dr. Barton himself admits that the ship was too large, and the rudder too small. Of course a good deal has probably been learned personally by the experimenters on questions of balance and stability, but it cannot be maintained that anything in the nature of a distinct step forward in the campaign for conquering the atmosphere has been accomplished.

BRITISH INTERNATIONAL CUP FOR MOTOR BOATS—ELIMINATING TRIALS.

THE first event of importance next week will be the Eliminating Race to determine who shall represent Great Britain in the British International Race for motor boats, to be held in Arcachon Bay, on September 11th. Last year these eliminating races preceded the race itself, which was held on the same day; but on this occasion, since France now holds the cup, it has been necessary to hold the trials separately, and the Motor Yacht Club—who now control all A.C.G.B.I. marine events—have incorporated this race into a

race is due to start at half-past twelve, so that those who intend to witness it will be able to cross over from Portsmouth to Ryde in the morning. From Ryde to Sea View is only about half an hour's walk, and there is also a motor bus service between the two places.

Five entries have been received for the race, viz. :—

Lieut. Mansfield Cumming's "Competitor," which is the old Napier Minor hull fitted with a Siddeley engine.

Lord Howard de Walden's "Napier," which is a feather-weight boat, the hull being constructed on the Saunders'

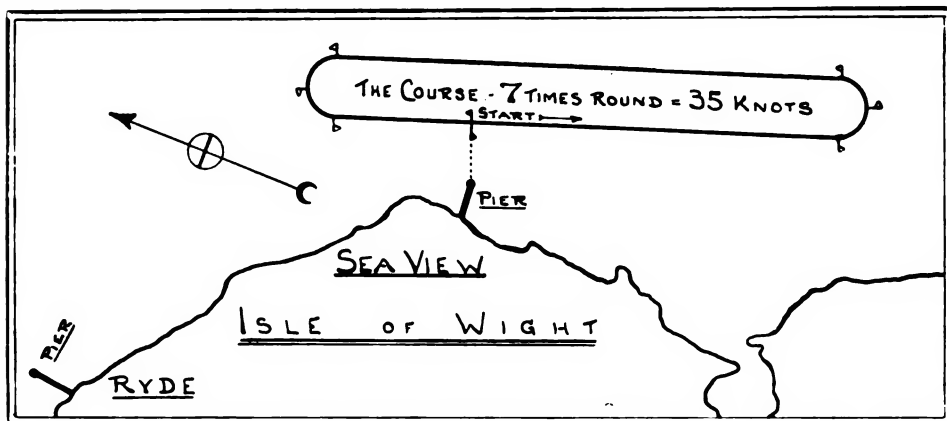
system (as is that of "Competitor"), the engine is of the standard Napier type, developing about 80-h.p. A description of this craft appeared in our issue of March 18th this year.

Mr. Lionel de Rothschild and Mr. John Scott-Montagu have entered "Napier II." in place of the special boat which is being constructed for them, but is not yet ready.

"Brooke I," which is entered by Mr. Mawdsley Brooke and Captain Corbet, had one of the six cylinders, which have a 10-inch bore and 8-inch stroke, damaged by a

broken valve during a trial run last Monday. We understand that the entrants have petitioned the club for a postponement of the event, failing which, for permission to meet the winner at a later date, and, if successful, to be entitled to be one of Great Britain's representatives.

The only other entrant is Mr. J. E. Hutton, with his "Hutton II.," which is another craft fitted with a six-cylinder engine, the bore and stroke being $7\frac{1}{4}$ ins. and $6\frac{1}{2}$ ins. respectively.



BRITISH INTERNATIONAL CUP.—Eliminating Trial Course.

regatta, to be held off Sea View on Tuesday next, August 1st.

Three other events are down on the programme for the same day, viz., a cruiser handicap and two racer classes, one for boats below 25 ft. and the other for boats between 25 and 30 ft. in length. Up to the time of going to press, we have not heard that these events are likely to prove extremely exciting, but as they are not even yet closed it is possible that a goodly number may actually turn up at the start. The actual eliminating

INTERNATIONAL CUP FOR MOTOR BOATS.—America has entered for this cup, presented by Sir Alfred Harmsworth, which this year will be run off at Arcachon on September 11th. The boat shown above is Mr. E. R. Thomas's Dixie, of New York, which is one of the boats entered on behalf of America to compete.

ARE YOU HAVING . . .

TYRE TROUBLES?

IN THE CEYLON RELIABILITY TRIALS

A Car driven by a Lady, fitted on all four wheels with High-Speed

SIRDAR-BUFFER TYRES

won the first prize in the Official Reliability Trials, proving once more that they are most comfortable, reliable, and economical.

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Thousands of delighted users can be referred to, who can tell you they are as comfortable as pneumatics, and the only reliable tyres.

Extract from "THE AUTOCAR," July 15th.

A NON-NIPPING AIR TUBE.

"I see in last week's *Autocar* (p. 56) a drawing of the Sirdar Non-Nipping Tube. To those who have not tried this tube, I would like to say that I have one which I keep as a spare for single-handed replacement. It is the most delightfully easy tube to put in as it lies right up in the concavity of the cover well out of the way of the security bolts and the beaded edges. No air is put into it till the cover is on the rim and bolted down."

BEWARE OF NEW EXPERIMENTS AND TYRES PINCHED ON, OR WITH WIRES WHICH CUT THROUGH THE RUBBER.

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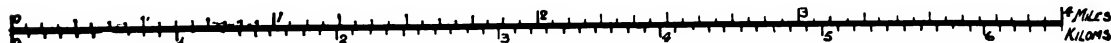
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Miles: Kilometres.—This Scale enables distances up to 4 miles to be compared in the English and French units of measurement; and is especially suitable for short, high-speed races. Each division above the line represents $\frac{1}{4}$ mile (110 yards). Each division below the line represents 0.1 kilometre.



MICHELIN TYRES.

A short distance Trial, say a mile long, is no Test for tyres compared to the Gordon Bennett Race, 341 miles long.

THE MICHELIN TYRES

not only won the 1905

GORDON BENNETT RACE,

but also came in 2nd, 3rd, 4th, and 6th, showing absolute proof of

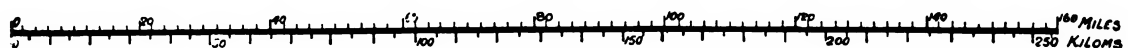
SPEED and RELIABILITY.

Osstend Week.

10 Kilometres (standing start).—1st, Wagner (Darracq), in 4 mins. 8 secs.=90.1 miles per hour.

WORLD'S RECORD ON MICHELIN TYRES.

THE MICHELIN TYRE CO., LTD., 49/50, Sussex Place, South Kensington, S.W.



Miles: Kilometres.—Distances up to 160 miles are compared in this Scale in English and French units of measurement. The scale is especially suitable for Touring purposes. - Each division above the line represents 2 miles. Each division below the line represents 5 kiloms.

CORRESPONDENCE.

* * *The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.*

MOTOR "ACCIDENTS."

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—In view of the numerous accidents to motor cars, more especially in recent months, the following may be of interest to your many readers:—

It will doubtless be within your recollection that a serious accident befel a party of motorists, travelling in a second-hand, recently acquired, car from Dartford, with the intention of reaching Deal. On descending a steep hill on approaching Strood, an accident occurred resulting in the overturning of the car, and the passengers being severely injured, one of them, the owner (not driving), dying on the way to the hospital. It was reported at the time that the accident was caused by the bursting of one of the rear tyres. Having had considerable experience on the causes of motor accidents, I considered I would be performing a duty to the public, and to automobilists in particular, if I went down and investigated the cause of the accident. With the least possible delay I proceeded to Strood, and on arrival was shown the car, garaged in a farmyard adjacent to the scene of the accident. On investigation, the car (which was at least 10 years old, and incapable of doing more than 15 miles on the level) proved to be a complete wreck, so far as the body was concerned. The off-side rear tyre was completely detached, and being of solid rubber naturally could not have burst, the near-side tyre was half out of the rim. The near-side chain was also broken, a distinct flaw showing half-way through one of the links, which were of the old block type, the driving sprockets on each side being considerably out of alignment. Chain guards were also fitted around the small sprockets. My theory of the accident, the feasibility of which will doubtless appeal to your expert readers, is that in descending the hill the car was allowed to overrun the engine, and in so doing attained an unusual speed, the chains being out of line and considerably worn, one of them mounted the small sprocket, and, getting entangled in the chain guard, locked the differential on that side, thus doubling the speed of the opposite side, causing the car to swerve, the front of the car coming into violent contact with the rather high kerb of the pavement, stood on its head, so to speak, and turned on its side, the steering-wheel striking a lamp-post there, and the passengers were thrown out, with the result as stated.

Hearing that the inquest was to be held that day, I decided to attend and volunteer evidence, if necessary. The inquest stood adjourned, and my services were not taken advantage of that day; other evidence was given which, to my mind, was not in accordance with the facts, and my object in writing this letter is to call attention to the importance of these accidents being officially investigated, as is done in the case of railway accidents, and we should then hear less of motor accidents. This particular car ought not to have been on the road, seeing the condition in which it must have been handed to the purchaser. Had it been expertly inspected beforehand, the accident could not possibly have happened.

Trusting that the importance of the subject will be a sufficient excuse for taking up your valuable space, and thanking you in anticipation.

Yours faithfully,

D. DOYLE.

9, Charing Cross Road. July 19th.

THE CLUB AND THE AGITATION.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—On Thursday, the 13th inst., I ventured to address the following letter to the Automobile Club. The matter to which it refers is of such general interest that possibly you may consider it worthy of publication or notice:—

"May I be permitted to humbly offer suggestions as to work which might be carried out by the club, in view of the public agitation against motor cars, and the fact that the law controlling motor cars is to be reconsidered by Parliament next year?"

"Those who have thought of the matter know that the roads and not the cars are at fault, that no legislation can prevent our roads from being far more used than they are at present by motor cars, and that the dust nuisance must increase unless roads are made of material suitable for the new and improved methods of travelling."

"I therefore beg to suggest that the club should, without further delay, re-make a stretch of road near London, where the dust is particularly aggravating at the present time. I do not suggest the

use of Westrumite, or tar, on existing road surfaces, as these can only be regarded as temporary expedients, but that the road should be re-made from its foundation with Tarmac, and other similar road material, and that when this has been done a general invitation should be issued by the club to the whole of the County Councillors of England and Wales, and especially to the Surveyors and Highways Committee to attend:—

"1. A demonstration on this piece of road with a view to proving that roads can be built so that motor cars are no longer a nuisance by reason of dust.

"2. A conference at which there should be placed before the County Councillors and surveyors, by the club, figures regarding the cost of relaying roads with the new material, the cost of their up-keep, and at which discussion should be invited as to how this cost is to be borne.

"Such a Conference should form a commencement of an educational campaign with a view to the nationalisation of the roads, and their re-making throughout the Kingdom with suitable material. The Conference should be followed by efforts to secure that in every county at least one stretch of road—and that, if possible, the stretch which is most used, and in which, at the present time, dust causes aggravation to the greatest number—should be re-made with the new material, so that it might be proved conclusively throughout the length and breadth of the land, that the dust nuisance is a temporary nuisance, and that the roads must be re-made.

"Such a campaign, if energetically undertaken by the club, would tend to accelerate what may otherwise take very many years, namely, the nationalisation and entire re-making of the roads of this Kingdom, and at the same time might remove some of the prejudice which exists against motor cars.

"In the interests of the movement, I venture to hope the Motor Union will avoid having club runs in various parts of the Kingdom during dusty weather. The head of an anti-motor movement, who wished to excite popular indignation against motors generally, would, I believe, organise a series of runs in various parts of the Kingdom, such as are now being organised by the Motor Union, in which car after car in rapid succession passes through a district, each car creating a huge cloud of dust, the long procession of cars as a whole making the road almost impassable for other users. Surely such demonstrations as these are particularly unwise in view of the very heated feeling throughout the country against motor cars. I took part in one, but resolved never to take part in another.

"Whether it be or be not suicidal, in the light of public opinion, to hold or permit at the present time meetings at which touring cars are exhibited travelling at 60 miles an hour, has been too often discussed to make it necessary for me to do more than express the hope that the club committee will again give this matter careful consideration before holding or permitting any further speed trials after that to be held at Blackpool."

Yours faithfully,

CLAUDE JOHNSON.



APROPPOS of the "discrimination" displayed so regu- larly by the notorious Guildford Bench, it is of interest to record that on Saturday last a motor car driver was fined £20 for exceeding the speed limit, while a blackguardly horse driver, who was working an unfortunate mare, lame in both legs and certified by the veterinary surgeon to be totally unfit for work, was only fined £1 and 10s. 6d. costs. The "lovers" of the horse invariably do their utmost to get the last ounce out of him.

MISS ANNESLEY KENEALY, who is so well known in the automobile world, arranged last week, with the help of a number of other car owners, to take out a small army of cripple children from the east of London for a motor car run. Altogether 100 children were loaded up on fourteen cars, about 200 others being conveyed in brakes, and the excursion to Loughton and Shaftsbury Hall and back again, was a most hilarious one. Miss Annesley Kenealy's idea was from every point of view a happy one. It has given the children an enjoyable day's outing and has demonstrated to all the villages on the line of route that motor car owners are far from being the child-destroying monsters that they are sometimes represented to be.

THE TOURIST TROPHY.— PART III.

To guard against "Freaks."

ALTHOUGH, naturally enough, the question of "freaks" has already arisen frequently in this article, there are still certain aspects of it which call for review, and should apparently be provided against in the rules. It is true that certain conceivable forms of freak cars are automatically guarded against in the restrictions that have been advocated above, but there are certain others which might not only be built to comply with those rules, but might also actually win the race. Perhaps the most probable directions in which the spirit of the rules could be successfully evaded would be in the employment of single-cylinder engines of unreasonable size, and of gear-boxes having an abnormal number of "speeds." In these two respects, therefore, it would, we think, be wise to frame special rules arbitrarily prohibiting them. The type of touring car which it is, now at least, most desired to develop always has at least two cylinders, and never has more than four forward speeds, and therefore nothing but good could result from precluding all vehicles having only one cylinder, or having more than four speeds. How much further it may be found advisable to go in respect of the number of cylinders, is a matter largely of opinion, and is one upon which the experience gained in this year's race is sure to be most valuable.

Apart from such specific cases as those just dealt with, it is so essential for all obvious "freaks" to be excluded from the Tourist Trophy, that we consider a rule should be made by which the organising officials can refuse to accept them as entries. It would, of course, be understood that the rule was not directed against any commercially useful new development, but merely to prevent clever evasions.

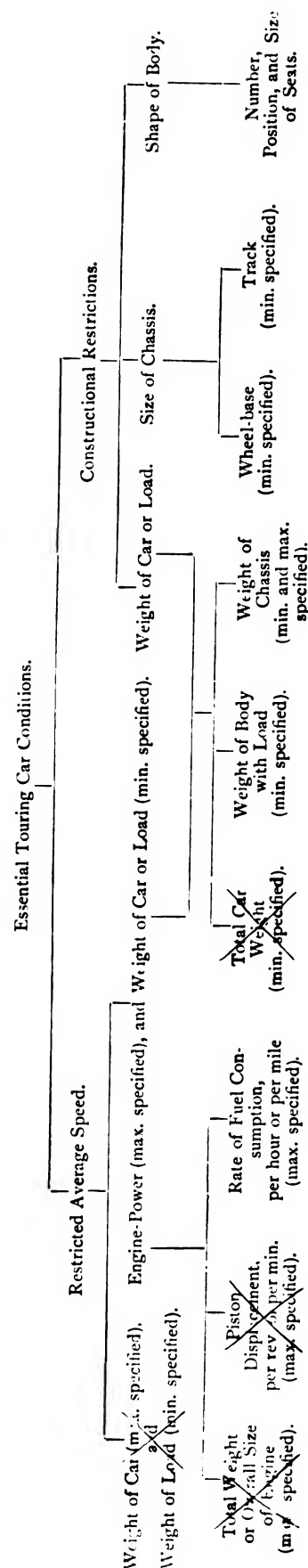
Some Further Suggestions.

There are one or two further ways in which we think the event could be rendered either more attractive or more useful to the general public than it otherwise would be. The first of these suggests itself because it is obviously impossible for all the cars to be started simultaneously, and yet is highly desirable that the spectators at every part of the route should know from their numbers the relative time allowances between the different cars. All that it is necessary to do, in order to secure this result, is to start the cars in the order of their numbers, and to allow some constant and well-understood interval of time to elapse between each start. There appears to be no reason why the cars should be delayed compulsorily at any point on the route, although it doubtless would be wise to make them come to rest for an instant at each "control," and, therefore, any spectator would—without having to make a complicated calculation—know the true relative positions of the cars at any time. Possibly, this idea might advantageously be carried even further, and a second number plate be used to indicate the number of laps that had been completed. Certain it is, at any rate, that too much cannot be done to retain the full interest of the public in the race as a spectacle of a highly interesting kind.

Our next suggestion is that the A.C.G.B.I. officials who conduct the trials should subsequently issue a full analytical report, not only expressing personal opinions

Graphic summary of the conclusions arrived at in our article; showing the various possible methods of eliminating, from the Tourist Trophy Race, all but bona fide touring cars, and indicating which suggested means have been discarded.

Read in the same way as a genealogical tree, each point leads on to the next natural consideration of possible or alternative methods of achieving the desired end. Each succeeding line—reading downwards—may therefore be regarded—in relationship to the previous line—as indicating "how to do it," as compared with "what has to be done."



concerning the merits or demerits of any special devices, but also giving as much useful data of a general character as possible. It should, too, enable comparisons to be made between the slower cars which completed the whole distance, and those which just failed to do so through lack of fuel, for it would thus do much to remove any possible injustice that might be done on this score to any firm through a misunderstanding on the part of the public. In any case, everyone would be anxious to know how much petrol each successful car had in reserve at the end of the race.

There is yet one more point to which attention might well be given in connection with the Tourist Trophy in future years, and that is as to whether it would not be wise to enlarge the scope of the event, and to develop two distinct types of car, instead of only one. By merely altering all the specified weights, dimensions and fuel allowances, any particular kind of car could be encouraged, so that it would be easy to institute a second class for two-seaters capable of averaging a speed of, say, 20 miles per hour. For the smaller class, there would, of course, be no need to exclude those having single-cylinder engines, but, on the other hand, the number of "speeds" in the gear-box might be limited to three. It would probably be out of the question to run the smaller cars over the same route at the same time as the larger cars, but we think a "motor week" would be most attractive to the public, and that the two events might be allowed to run consecutively. Three days for the larger, and two days for the smaller cars would doubtless meet the case.

Summary and Conclusion.

For convenience of reference we have summarised, in tabular form, the various suggestions contained above, and have also prepared a complete list of the weights, measures, and dimensions already specified by the existing rules. Concerning the former, we strongly advocate the adoption of all, with the exception of No. 10, which is open to question; and with regard to the latter, we would point out that, apparently, "E" and "F" require revision now, while "A" and "C" will doubtless have to be modified frequently as time goes on, in order to make them conform to the best practice of the day.

From what has been said, we think it will be agreed by all that the general basis upon which the Tourist Trophy rules have been framed is such as to render that event vastly more popular, and considerably more useful to the buying public, than any other form of competition that has been held previously. We have not only endeavoured to explain the difficulties that are essentially encountered by those who attempt to frame satisfactory rules for any automobile event, but have also tried to suggest methods whereby the desired results can be most nearly obtained, without risk of doing any injustice, or causing undue expense, to the manufacturers of the competing cars. For our own part, we feel that it is only necessary for purchasers and makers alike to realise what the value of this event might be to themselves, and the success of the Tourist Trophy Race is ensured. The event has, at any rate, the great advantage of being purely "made in England," and—being essentially practical—is typically British. We may be a "nation of shopkeepers," but even if we are, we are buyers as well as sellers, and we not only like to think that the best we sell is made in our own country, but we like to know that what we buy is the best.

Suggested Modifications of Rules.

- (1) The bodies to be comprised of four independent parts.
- (2) No cars to have engines with less than two cylinders.
- (3) No cars to have more than four forward "speeds."
- (4) Any obvious "freaks" may be refused entry at discretion.
- (5) Any unduly noisy car may be disqualified at discretion.
- (6) The race to extend over two, or three, consecutive days.
- (7) The cars to start, at equal time-intervals, in order of numbers.
- (8) The cars to be stopped, timed, and re-started immediately, at numerous "controls."
- (9) The cars to carry numbers denoting laps completed.
- (10) The cars to be driven by different drivers each day.
- (11) A class to be instituted for two-seated cars, to compete separately, and on other days.

Specified Weights, Measures, and Dimensions.

- (A) *Fuel Consumption*—1 gall. per 25 miles (dry, average road).
- (B) *Weight of Body and Load*—950 lbs. (including 300 lbs. ballast and 22 stone passengers).
- (C) *Weight of Chassis*.—Between 1,300 lbs. and 1,600 lbs.
- (D) *Wheel-Base*.—Not less than 7 ft. 6 ins.
- (E) *Track*.—Not less than 4 ft.
- (F) *Platform behind Dash*.—Not less than 6 ft. 6 ins. long and 2 ft. 6 ins. wide.
- (G) *Width of Seats* (each pair).—Not less than 3 ft. 4 ins. (between cushions).
- (H) *Height of Seats* (from ground).—Not less than 2 ft. 10 ins.



VIEWS AND OPINIONS OF OUR READERS.

IN placing the numerous communications that we have received with regard to our article on the Tourist Trophy before our readers, we would take this opportunity of thanking the writers of these public contributions on the subject, and of also extending our most cordial thanks to those who, from one reason or another, do not feel free to publish their personal opinions, but have, nevertheless, written assuring us of their support, and explaining the causes for the natural reticence that they experience in the matter, at the moment. It has come as an agreeable surprise to us that so many of our readers, including most of the leading men associated with the industry, should have expressed their appreciation of our article, and it is particularly encouraging to see that the subject of the Tourist Trophy race is receiving the widespread attention that it deserves. There is no doubt that the question, when dealt with in the only way that it can be at the present time—in the abstract—is difficult and intricate, but it is to be hoped that the strong light which is thus being thrown upon it, from all and every point of view, may materially assist in its solution, and may lead to the establishment of a really satisfactory type of automobile contest, that is not only of a sufficiently simple character to appeal to everyone, but will constitute a true test of all the most desirable attributes of a perfect touring car, and will place a proper value on skilful driving.

The Hon. Arthur Stanley, M.P., Chairman of the Automobile Club:—

I beg to acknowledge with thanks the receipt of your letter of the 13th instant, enclosing copy of the able and interesting article which appeared in your Journal on the subject of the Tourist Trophy Race. I think it is an admirable statement of the objects for which this race was instituted, and it shows clearly the benefits that are likely

to arise from it. I am certainly of opinion that an annual contest such as this will be of real use to purchasers of motor cars, will be beneficial to the industry, and will prove to be a popular event.

Hon. C. S. Rolls:—

I think your remarks and suggestions concerning the Tourist Trophy and its value to the buying public are very excellent.

Racing, pure and simple, has served its purpose, and the construction of special racing machines, which are of no use to the ordinary motorist, involves competing firms in enormous expense.

I have always been in favour of a limitation other than weight, and am personally in favour of limited cylinder capacity. Limitation of fuel, however, will have much the same effect. Whichever may be the best method of limiting the speed and power of competing cars, there is no doubt that the Tourist Trophy may be said to be the first race for motor cars run on rational lines, the object of which is the improvement of motor cars of a type which is useful to the ordinary purchaser, instead of encouraging the breed of more or less freak machines.

For this reason, it is to be hoped that the Tourist Trophy, with certain modifications in its rules, which experience may show to be necessary, will become a great annual National event.

Chas. S. Rolls

Mr. G. H. Baillie:—

Your articles on the Tourist Trophy constitute, I believe, the first full discussion which has been published on this race and its novel restrictions, and what you say well serves to show how much more interesting and intricate a problem the contest is than an ordinary fuel consumption trial. What you do not say, though, and have, I hope, reserved for future issues, would show this even more forcibly.

You have touched really one side of the question only, viz., the other means of limiting speed to the one adopted, and the various other restrictions required to make the race useful as a tourist car evolver. But you have not raised the question as to how far the main limitation of fuel will achieve its object of restricting speed, nor have you discussed to any extent the consequences of this limitation in engine and car, if the contest between makers becomes keen enough to induce them to experiment. A consideration of these questions brings one to many points in the working of petrol engines, about which one has to plead ignorance. Here I think the Tourist Trophy may be of great service; the competition offers to makers of cars a commercial inducement, and, at the same time, an inducement to carry out experimental work which cannot fail to benefit the industry.

I cannot now recall any figures giving the variation of fuel consumption of a petrol engine with speed. Measurements on gas engines are always made at nearly constant speed and variable power, and, as might be expected from engines with a comparatively low mechanical efficiency, show that maximum efficiency is obtained at full load. In a petrol engine maximum power is reached at or slightly under normal speed, but it is probable that maximum efficiency will be obtained at a lower speed. The lower the speed, the less throttling there will be in the inlet passages, and the greater will be the compression. High compression leads to high efficiency, but there will be, I think, an early limit to the increase of efficiency with diminishing speed, on account of the greater interchange of heat between cylinder walls and gases at lower speeds. The speed for maximum efficiency will be below the normal speed, but probably not very far below it. This, though, will depend on the engine; the more restricted the inlet passages, the lower will be the speed of maximum efficiency.

This is an important point, as on it chiefly depends the success of the fuel restriction in limiting speed. The wind and road resistance, of course, comes in, but at speeds up to, say 40 miles per hour, the wind resistance is not high, and the road resistance does not increase rapidly with speed.

The ordinary touring car is so geared as to run on the level on top gear and at nearly full speed, with the throttle partially closed. This is an uneconomical condition of running, and there is no doubt that the majority of touring cars could be run more economically on top gear by increasing the gear. For touring purposes such an increase of gear would sacrifice comfort in running by requiring a too frequent change of gear, but for racing it would tend to defeat the aim of the promoters of limiting the speed.

I notice that throughout your articles you speak of *average* speed, but surely what it is intended to restrict is the *maximum* speed. A touring car that will average 25 miles per hour with upper and lower limits of 30 and 20 miles per hour, is far better than one making the same average with limits of 40 and 10. What is wanted, and what is, I believe, the object of the Tourist Trophy, is to restrict the

maximum speed and let the best average win. I fear the full limitation will not achieve this object, and I incline to the view that the car running between 40 and 10 miles per hour will consume less fuel than the one running between 30 and 20, because the engine will be running longer at full load and moderate speed.

Where the fuel limitation is likely to lead to results of the greatest interest and importance is in carburettors and methods of regulation. In stationary gas engines it has been found that the greatest economy is obtained by using mixtures as weak as possible, and there is no reason to suppose that the same is not the case in petrol engines. The present day practice in regulation is not, however, to use weak mixtures, but to diminish the quantity of mixture when running at lower loads. Regularity of carburation is not a strong feature; too many variables—temperature, pressure, quality of petrol, &c., affect it. Consequently, under all conditions of running, there must be a margin to allow variation of mixture without going outside the limits of expossibility. From the correct mixture the margin in the direction of richness is much greater than that in the direction of poverty of mixture. So, to secure certainty of firing, the mixtures now used are usually too rich. The nose is generally able to confirm this. There is no doubt this is the right condition, for regularity in firing is more important than economy in petrol. But if carburation could be made more regular, petrol could be economised without sacrificing certainty of ignition. The best regulation for the Tourist Trophy would probably be one that gave the correct mixture at full load and weaker mixtures at lower loads; anyhow it would have the advantage of minimising the trail of smell.

The little suggestions with which you conclude your articles are worth consideration by the organisers of the race. The cut-up body is an ingenious idea, but I doubt its utility except to prevent chassis freaks. The ordinary car chassis, even if too light for its work, will give way, not after hundreds but after thousands of miles, and I do not quite agree with you that the body has much effect in strengthening it; the points of attachment of the body are usually too few, and the attachments themselves too light for the body to have much effect on the chassis.

The second suggestion I thoroughly agree with. The last reliability trials showed that petrol consumption increased largely with the number of cylinders, and there is no doubt that the larger the cylinders the more efficient is the engine. Four-cylinder engines are adopted for the sake of quiet running and absence of vibration, and it is a fault in the Tourist Trophy conditions if a premium be placed on one and two-cylinder engines. It is, though, a difficult point to meet, without having separate races for one, two, and four-cylinder cars. The four-cylinder car ought to be encouraged for the sake of those who can afford it, and the one and two-cylinder ought equally to be encouraged for the sake of those who cannot.

No. 3 is undoubtedly right; a five-speed car would be almost a freak.

Nos. 4 and 5 are good for everyone but the club officials.

I feel doubtful if much would be gained by extending the race. A three days' race now-a-days is too short to test what a car can stand, and a one-day race is long enough to test what it can do.

Nos. 7 and 8 would certainly serve to increase public interest.

In regard to No. 8, I think there should be as little stopping and as few controls as safety allows.

No. 10 I do not agree with. A private car is generally driven by one man who knows how to get the best out of it, and the best a car can do is what one wants to test, and what is tested when the car is driven by the man with most experience of the particular type.

I ought, before concluding, to apologise for the greater part of this letter being irrelevant to your articles. If, though, you were thereby stimulated to write further articles on the subject of my irrelevance, the apology would be needless, and the Tourist Trophy would be bearing fruit while yet, so to speak, in the womb.

G. H. Baillie

Mr. Claude Johnson:—

Having interested myself for many years in the possibility of arranging for a race of motor cars of moderate speeds, which would tend to improve the touring car, rather than create a car which is quite unsuitable except for racing at very high speeds, I am delighted to read the advance-proof of the articles on the Tourist Trophy Race, which you have been good enough to forward to me prior to their publication in your valuable journal.

The special commission, on which I had the honour to serve, which prepared the rules for the Tourist Trophy Race, expressly stated that they did not for one moment think that they had arrived

at the best conditions for the race, but that these could only be arrived at by experience.

The rules which control yacht racing were not framed by a body of men sitting round a table prior to the commencement of yacht racing in its present form, but are the results of years of experience. I believe that experience will enable us to arrive at far more satisfactory conditions for the Tourist Trophy Race than those compiled by the Commission.

With reference to the suggested modification of rules:—

1. Without dividing the body into four independent parts, it might be stipulated that the ballast should be carried on a floor which is born by the chassis, and not by the framework of the body.

2. and 3. I agree that the engines should not have less than two cylinders and the cars should not have more than four forward speeds.

4. The rejection of "freaks" is a difficult question. It is human to err, and the authorities might reject a car (which might eventually prove a distinct advance on anything hitherto designed) because it differed radically in design from standard cars. My impression is that the "freaks" should be allowed to run, and that if their qualities are such that the public would not buy them as touring cars, the makers would not gain much by their manufacture, and other makers would suffer little from being beaten by a car which nobody would buy. If, on the other hand, the "freak" is a car which the public would like to drive, it is right that it should be permitted to run.

5. The disqualification of a car for being noisy must again depend on human judgment. If a jury of the public, consisting of not less than twelve men, could be placed in a jury box during the race to measure how long before the arrival of a car opposite their box they could first hear its approach, some sort of standard might be arrived at, but I should not like to see the disqualification of a car placed in the hands of one or two men.

6. If, for instance, the Isle of Man authorities would permit the race to extend for two or three days, I should strongly be in favour of its extension.

7. Presumably the race will be started in the manner suggested.

8. The control stoppages should, if possible, be organised as you suggest. As regards the numbers on the cars (instead of being 1, 2, 3, 4, 5 consecutively), they might correspond with the number of minutes at which the car is started at the beginning of the race after the departure of the first car. Supposing that the intervals are 3 mins., the first car would be No. 0, the second No. 3, the third No. 6, the fourth No. 9, and so on, so that the spectators might see at a glance that the last-named car had started 9 mins. after the first-named.

9. I would suggest that the identification numbers should be carried on the front and back of the cars, and on each side of the cars there should be a case in which large cards could be slipped indicating the time in minutes occupied by the car from the beginning of the race up to the completion of the last round completed—the figures of the first round to be black, the second round blue, the third round red, and the fourth round white on black. These figures could be slipped in on the completion of each round, and the spectators would know at a glance precisely how many minutes each car had occupied from the time that it started, and therefore the relative positions of the cars irrespective of their actual order on the road, and this without any calculation whatever on the part of the spectators.

10. The suggestion is admirable, and I think, workable. There would be no difficulty in providing a different driver for each day.

11. I think it would be a mistake to have on the road at the same time cars averaging 25 miles an hour and cars averaging 20 miles an hour. This would mean that the slow cars would be



New Identification Mark.—For the County Borough of Northampton, the Local Government Board have allotted new identification letters, viz., N. H. This new mark takes effect from July 14th, but does not interfere with the validity of the identification letters of any car registered with the Council before that date.

ACTING upon official instructions, the Scarborough Chief Constable has stopped motor cars from going on to the Esplanade during Church parade. A correspondent writes and asks under what authority the police claim to take these arbitrary proceedings. We should like to know that too.

being passed all day by the faster cars, and the difficulties in passing might delay certain cars, and thus destroy the accuracy of the record, and at the same time would increase the danger of the race.

Possibly we may have fixed the chassis weight a little too light and the body weight a little too heavy, but these appear to be errors in the right direction.

Featherweight bodies are as a rule neither comfortable nor durable, and the cutting down of weight in the chassis within reasonable limits is desirable.

Personally, as a member of the trade, I am very grateful to the AUTOMOTOR for the spirited manner in which they have taken up this matter, and for the very valuable article they have contributed towards the solution of what is undoubtedly a very important, and at the same time, a very difficult problem.

Claude Johnson

We have since received the following further communication which Mr. Claude Johnson has sent out:—

If one places oneself in imagination in the place of a spectator watching the Tourist Trophy Race next September, sitting on a wall at some spot remote from a control, one can realise how difficult it will be for him to know which of the fifty or sixty cars is leading. If the cars are started at two minutes' interval, the last car may start nearly two hours after the first car. The race, therefore, to the spectator is likely to be nothing more or less than a procession of cars. I have ventured, therefore, to suggest in a letter to the Editor of THE AUTOMOTOR JOURNAL, that such a circuit race might be made more interesting if each car bore on its sides large figures denoting the number of minutes which have elapsed between the start of the car and the conclusion of the circuit it had last completed. The figures on the cars should vary in colour with each circuit. By this means the relative position of the cars would be graphically demonstrated to the spectator, who would readily know, for instance, that although a car might pass him an hour and three-quarters after the passing of the first car during the 3rd circuit, it had occupied 240 minutes in completing the first two circuits, whereas the first car had occupied 245 minutes. The difficulties of organisation do not appear to me to be great, and I beg to make the following suggestions:—

1. Each car should have fitted to its sides frames in which figures printed on stiff cards could be dropped at the end of each circuit.

2. Control keepers should, of course, note the time of the arrival of a car at a control and the time of its departure, but instead of entering this on a card and forwarding it to the chief control in the box attached to the car, he should be supplied with metal discs of various sizes, large one representing a minute, the others to represent half minutes, quarter minutes, and five seconds, and should drop these into the box attached to the car, discs to a number representing the exact time from the arrival of the car at control until its departure.

3. At the end of a circuit, the time-keeper, by a simple subtraction sum could ascertain the gross time occupied by the car from the commencement of the circuit to its finish. His assistant, by counting the discs found in the box at the end of the circuit, could quickly ascertain the number of minutes occupied in controls, and by deducting these from the gross time, the nett time for the circuit would be arrived at, and the nett time in minutes occupied from the start to the completion of the circuit could be announced and recorded by the insertion of cardboard figures in the frames on each side of the car.

MR. EDMUND E. BENTALL has been gazetted Lieutenant of the Motor Volunteer Corps, and Capt. and Hon. Maj. Hercules, Oxfordshire L.I., Captain.

At a meeting on Saturday last of the Oxford Corporation Tramways and Highways Committee, instructions were given to Mr. Worby Beaumont and to Mr. Stephen Sellon to advise the Council as to the most suitable form of traction for Oxford, the Corporation having agreed to purchase the existing horse tramways under the tramways Act of 1870. Mr. Beaumont will advise on the subject generally, and with special reference to motor omnibus transit, and Mr. Sellon more particularly with regard to tramway traction.

SIDDELEY-MEYAN RELIABILITY CONTEST.

SIDDELEY-MEYAN CONTEST.—The cars descending to Aix-les-Bains.

THIS sporting match, it will be remembered, began on the 12th instant, when Mr. Meyan's 24-h.p. De Dietrich and Mr. Siddeley's 18-h.p. Siddeley started from Paris for their long run round France, and each week we have recorded the progress of the cars.

The competitors have now completed more than half their labours, and so far neither of the adversaries has lost a point. From all accounts the passengers have fared worse than the cars; nor is this surprising when one remembers the long distances to be covered at high speeds every day, the early starts, the dust and terrific heat that has been experienced throughout.

Save that both cars lost their way in a fog soon after leaving Boulogne, the first 1,000 kiloms., occupying the first three days, was accomplished practically without incident, and the cars arrived at Vesoul soon after midday on the 14th instant, where the competitors entertained each other at luncheon. The Siddeley averaged over 35 kiloms., or 22 miles per hour over the whole of this distance (running time), including the climb over the Plombières Ridge, while the higher powered De Dietrich exceeded this slightly. Both competitors drove at high speed when possible, Mr. Meyan frequently going over 70 kiloms. per hour, while the Siddeley maintained 60 for long stretches.

On Sunday, both cars left soon after 5 a.m. for Aix-les-Bains, through Besançon and Bourg, a distance of 330 kiloms. The Siddeley had a good deal of trouble with the near back tyre, which eventually had to be replaced, but both cars reached Aix in good time, the De Dietrich at 1 o'clock, and the Siddeley at 3.32. The day's run had taken them through some of the finest scenery in France, but the Dauphinais hills between Bourg and Aix were very rough on brakes and

tyres, giving the competitors a taste of what was before them on the next day's run. Our illustration shows the cars descending into Aix.

At 4.30 on Monday morning, the competitors left Aix by the Modane road to tackle the Mont Cenis pass on their way to Embrun, a distance of 287 kiloms., including a climb of 6,000 feet. The road rises all the way from Aix, but the gradient does not become stiff till after passing Modane, whence the road winds, with hairpin corners, up to the hut.

The Dietrich, as was to be expected, beat the Siddeley up by some 11 minutes, but both cars made the ascent ahead of their time, though with their cooling water boiling furiously. The descent to Embrun was made at break-neck speed, as owing to a misunderstanding both cars fancied themselves behind their schedule. Arriving at Embrun, where they slept, it was supposed that the worst of the trip was over; but, as a matter of fact, the next day's run to St. Raphael, 337 kiloms., climbing the Col D'Allos, proved even more trying than the previous day's experiences, the road being very steep and rough, the heat still excessive, while many of the corners forced the cars to reverse in order to get round. On this climb the Siddeley made a remarkable performance, doing 21 kiloms., with a total ascent of 2,200 metres in 59 minutes, and this with four passengers and a considerable amount of baggage on board. It would be difficult to conceive a more arduous trial for any car than these two days' work, and it is a matter of sincere congratulation to the makers that nothing but quite minor troubles occurred. Mr. Graham White in a letter to Mr. Siddeley remarks: "No written words of mine can give you an idea of the tremendous drubbing the car has been through during the last two days."

It should be borne in mind that both the cars have seen much hard service previously, and are by no means new, the Siddeley having been run over 40,000 miles, and Mr. Meyan's car, having had over a year's hard use, and has run some 30,000 miles.

On the 18th and 19th inst., the journey was continued to Bezières (337 kiloms.) and Luchon, in the Pyrenees (286 kiloms.), passing through flat and uninteresting country, nothing more trying was encountered than bad roads, punctures, and terrific heat.

At Luchon a day's rest was decreed, and it was decided, at Mr. Meyan's request, to cut out the run to Bayonne, and to go direct to Bordeaux.

On the previous day, the Siddeley had suffered considerably from overheating owing to some of the small tubes of the radiator being choked with dirt. An opportunity was taken here to clean out the radiator with a powerful hose, and no further trouble was afterwards experienced. Two covers were also replaced, and Mr. Meyan, as a matter of precaution, renewed all his tyres and replaced his valve springs.

Subsequent telegrams show that Brest, only 800 kiloms. from Paris, was reached without mishap.

If, as we hope, the British car goes through without the loss of a mark, Mr. Siddeley will deserve and receive universal congratulations. For whether his car dead heats with, or is victorious over, Mr. Meyan's De Dietrich, he will have shown that the British Automobile of to-day can hold its own in any company and under the most trying conditions.

At the moment of going to Press, we learn by telegram that the match has resulted in a dead-heat.

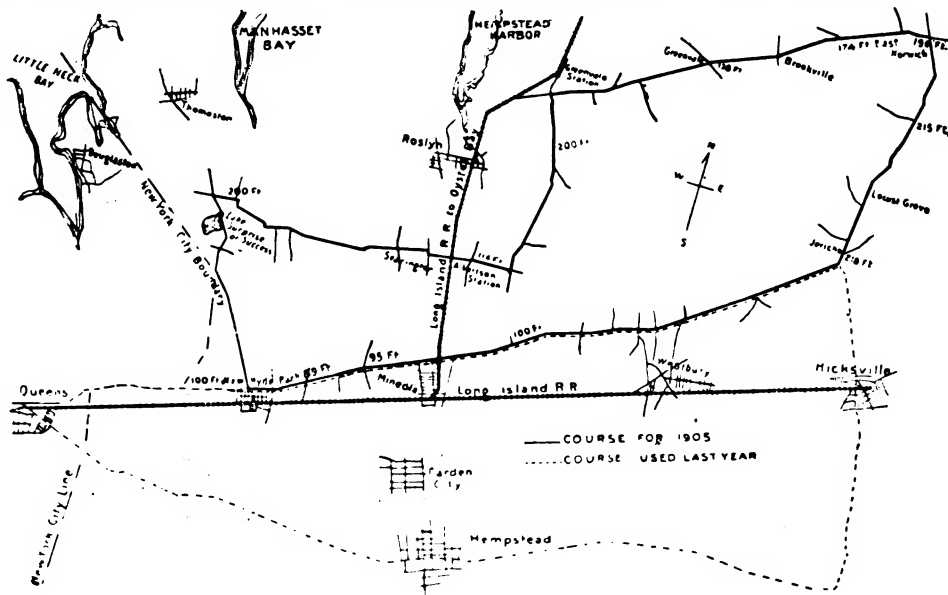
RACES, RECORDS, AND TRIALS.

The above drawing is the work of Mr. F. C. Wheeler, a Birmingham enthusiast on speed, he having allowed his imagination to run riot over visions of the Siddeley car built by the Wolseley Motor Car Company.

Vanderbilt Cup.—We gave the points of the new course for this cup the week before last, and we now publish a sketch map. A question has arisen in France in regard to France taking part, as the race is practically identical in principle with the Gordon-Bennett Cup Race, of which France has so recently entirely washed her hands. The suggestion is that here is France upholding and taking part in a similar race, which, in the event of a French car securing the cup, will place the A.C.F. in the position of having to import a new Gordon-Bennett event in to France from America, in which France again will only be entitled to equal representation with other countries. It is this principle which has brought about all the trouble over the Gordon-Bennett Race, and, therefore, it is held that to be consistent France should take no part in the Vanderbilt Race. The situation becomes, therefore, extremely interesting. In the meantime the A.C.F. have protested against the length of the new circuit—22 miles—and the folly of starting 35 racing cars over such a short course, which will mean the cars passing and re-passing each other at such frequent intervals as to seriously add to the

dangers of the race. The French club suggest that they may follow up their objection by scratching their entries—which, after all, would be an easy solution to the main question which has been raised.

THE Electric Vehicle Contest, which was being organised by the A. C. de France for August, has been abandoned, owing to the lack of entries received.



VANDERBILT CUP.—Outline map showing the new course for this Cup, particulars of which we gave the week before last. The American Eliminating Trial will take place on September 23rd, and permission has been granted for the running of the race on October 14th. The grand stand will probably be located at a point near Mineola. Our sketch map is from the "Automobile."

Mr. Victor H. Miller and Mr. D'Arcy R. Baker on the first of the new 60-h.p. Fiat Cars which arrived in England last week. The chassis, which is intended for touring, is designed on the same lines as the 24-h.p. model, with the exception of the clutch, which is of the Mercedes type, but has a double scroll. We give a view of the engine below.

Blackpool Race Meeting.—The programme for the Blackpool meeting was of a diverse character, although restricted to high powered cars in racing trim. Three events were down for the first day, and four for the second, six of the seven being scratch races. The racing cars competed over the flying mile on Thursday, and over the flying kilometre on Friday. The other Thursday events were standing start races over about a mile and a half, while Friday was reserved for the Flying Kilometre and the Lancashire Handicap, the latter being open only to members of Lancashire Automobile Clubs. A full report will appear in our next issue.

Welbeck Speed Races.—On June 24th we gave particulars of these speed trials held under the auspices of the Notts A.C. The results of the Scratch Events and Speed Judging we gave on July 1st, and it is now officially announced that the Wilson Cup, under the Handicap formula for the best performance over the flying kilometre, is secured by Mr. R. M. Wright, of Lincoln, who drove an 8-h.p. Wolseley.

WE are glad to note that upon the suggestion of Mr. S. F. Edge, it has been resolved by the Automobile Club that the whole system of classification in relation to race meetings is to be considered by the committee in conjunction with recommendations from the Races Committee.

Gordon-Bennett Race, 1906.—Italy does not intend to let the Gordon-Bennett Cup remain with France unchallenged. A formal challenge has been sent in and Mr.

Gordon-Bennett has been notified of the fact. The Italian Club's action is hardly to be wondered at in view of the splendid running of the Fiat cars on the Auvergne Circuit. In addition it is practically certain that an eliminating race for Italy will be necessary, as besides the Fiat cars in all probability there will be other candidates to represent Italy, including the makers of the Itala car (Turin), and at Milan the Züst and Isotta Fraschini. In France, M. Darracq—one of few—is very emphatic in regard to running in 1906 if he gets the chance, he strongly feeling that France should not retire from so important a contest.

View of the 60-h.p. Fiat engine from the inlet-valve side. The general design is the same as the 24-h.p. model, but the bore and stroke are 145 mm. and 160 mm., respectively.

August 5th and 7th, were the two G.-B. Wolseley cars, the three Gordon-Bennett Fiat racers to be driven by Lancia, Nazzari, and Cagno respectively, and a 100-h.p. Itala car with Fabry as driver.

Havre Speed Events.—The speed races over the standing mile and flying kilometre, arranged by *L'Auto* for August 3rd, between Havre and Harfleur, in connection with the big commercial vehicle reliability trial, will comprise three categories, viz, for racing cars, tourist cars, and heavy vehicles. These will be divided as follows:—

Racers.—Four classes—Motor bicycles, voiturettes, light cars, and heavy cars, according to the A.C.F. regulations.

Tourist Cars.—Seven classes, according to chassis price, from 4,000 to over 25,000 francs.

Heavy Vehicles.—Awards decided by formula—

$$\text{Load carried} \times (\text{Average speed})^2 \\ \text{Price of chassis.}$$

In each class the results will be governed by the combined times of the flying kilometre and the standing mile. The entrance fee is 20 francs per vehicle.



MOTOR CYCLING.

World's Championship for Motor Bicycles (Antwerp).—This race, for machines up to 50 kilogs., over 5 kilometres distance, was concluded on Monday last at the Zurenborg Velodrome, Antwerp, and was won easily in the final by Anzani, for Italy—against Olieslaeger (France), who burst a tyre, and Bac (France), who broke a chain and fractured his right foot. In the heats, the best time was 3 mins. 3 secs. for the 5 kiloms., flying start.

THE Auto-Cycle Club's Annual Race Meeting is now announced to take place on Saturday, September 2nd, at the Crystal Palace, when, amongst other trophies, THE AUTOMOTOR JOURNAL Cup will be competed for.

Silent Chains.—Those who are interested in high speed transmission of power by chains will do well to secure Messrs. Hans Renold's latest catalogue of their well-known "Silent" chains. The previous catalogue of this well-known firm bears the date of 1899, and several improvements in their chains have been introduced since that date. The present catalogue also contains a description of the principles on which their silent chains are constructed.

HERKOMER CUP.—We are able to reproduce a photograph of this important trophy presented by Professor Herkomer which will be competed for at the beginning of next month. The Trophy is of silver, and without the plinth is about 20 inches in length, and 2 feet high. It weighs 40 kilogs., and depicts the Goddess Victory seated on the apex of a cloud of dust with Mercury (personifying the commercial aspects of the movement) beside her.

Scheveningen Meeting.—An interesting series of events made up an attractive programme for this week's meeting, concluding on Saturday last. In the opening speed event over the standing kilometre, Wagner, on his 80-h.p. Darracq, tied with Jochems, on his 80-h.p. Mercedes, with 40½s., and in the re-running Wagner made best time in 37½s. against Jochem's 40½s. A novel and amusing contest was the slow race for mechanics over 500 metres, which was secured by Otto, on a C.G.V., in 7m. 52s., against Wanderwey, on a Germain, 7m., and Joubert (Renault) in 6m. 10¼s. A 100 metres backwards race for mechanics was won by Paaus (80-h.p. Mercedes), 13½s.

Glidden Cup.—In the climb, during this event, up Mount Washington, the Napier did the 8 miles rise in 20m. 8s., beating all records by 4½m. The best previous time has been made by Mr. H. L. Harkness, in 24m. 37½s.

Circuit des Ardennes.—Amongst the entries for this fixture, taking place on

One of the latest 15-20-h.p. 4-cylinder Brooke cars, on which Messrs. Brooke and Co. have added a small Cape cart hood for the back portion, and have included a new type "Brooke" dashboard, giving a pleasing finish to the design of the entire car.

CLUBS AND ASSOCIATIONS.

Motor Union.—The Union now includes 54 clubs with an aggregate membership of 7,070, in addition to 1,112 members who have joined individually, making a total membership of 8,182. The annual subscription is one guinea, but half the subscription at the present time will carry up till December next.

Society of Motor Manufacturers and Traders.

—The first ballot for spaces at the Olympia Exhibition in November took place on Monday last, the plans of the Exhibition having at last received the approval of the London County Council. The Society have completed a contract with the owners of Olympia, whereby the use of that building for motor exhibitions is assured to the Society for a long term.

£150 has been voted by the Society in support of the trials, races, &c., to be held this season by the Motor Yacht Club and the British Motor Boat Club.

Somerset A.C.—At the annual meeting of the club held at Haygrass House, Pitminster, at which Mr. Stanley Austin presided, a satisfactory report was presented, the membership standing at 91. Sir Wroth Lethbridge was elected president, with Sir Cuthbert Slade and Messrs. John Hargreaves, J. J. Jackson-Barstow, and R. A. Sanders, vice-presidents. The following were chosen as the committee:—Col. Barrett, Messrs. Stanley Austin (Glastonbury), W. S. Donne (Castle Cary), J. Aspinall (Bridgwater), R. B. Graves - Knyfton (Uphill), H. C. Batten, Vaughan Jenkins (Monkton Combe), Dr. Benson (Bath), H. L. T. Blake (Stogursey), H. Hippisley (Stoneaston), Chester Master (Bridgwater), and P. F. Cary Elwes (Somerton). Mr. A. Armitage was re-elected hon. secretary and treasurer.



Peugeot Cars.—Messrs. Friswell, Ltd., have issued a catalogue, which is an artistic production giving illustrations of all the latest types of Peugeot motor vehicles. The baby Peugeot has undergone considerable modification, but the price remains unaltered for this popular little car.

Capt. Duff, of the Life Guards, and Lady Julia Duff on their 18-h.p. Napier carriage.

MOTOR BOATING.

Paris-to-the-Sea.—On Saturday last this annual event organised by *Le Journal de l'Automobile* was started from Paris. A large number of entries had been announced in each of the series, but the whole affair resulted in a fiasco, as only three boats in all turned up at the starting point, viz., Mimi, Richochet, and Gardner-Serpollet. The organisers, however, insisted upon the contest being proceeded with, and these craft were accordingly sent off. The first stage was to Meulan. Richochet before this point simply disappeared, whilst Gardner-Serpollet returned to Paris, abandoning further participation under the circumstances, leaving Mimi to cover the whole course by herself. This little 8-h.p. *extra réglementaire* craft was formally escorted on its way with the exclusive services of three timekeepers, a committee, several journalists, and four motor cars, she covering the distance to Meulan in 9h. 57m. 10s., the little boat continuing its journey down to Havre in solitary state.

On Sunday a procession of cruisers started from Paris, in a run arranged by the *Yachting Gazette*, in connection with the Coupe de Trouville, organised by *Les Sports*. A very poor showing for this also resulted, although a few extra craft joined the procession from various points. The result was that for the Coupe Dubonnet, held at Mantes, under the auspices of the Helice Club, only one boat materialised, viz., Antoinette III., which indulged in a "walk over" the necessary 100 kiloms., her time being for the distance 2h. 20m. 32s.

Already a number of automobiles are in constant use in the Malay States, the commercial side of automobilism particularly commending itself to the residents in this country. An interesting photograph of a De Dion Bouton vehicle is shown above. This has been running over a considerable period and has been the means of greatly helping to spread the movement in this direction. This lorry is fitted with the De Dion expanding clutch type of gear.

POINTS OF LAW.

Liability for Chauffeurs.—A case which should prove very interesting to employers of chauffeurs was heard on the 17th inst. at the Westminster County Court. It appeared that one of Mr. E. H. Lancaster's drivers was instructed to take a customer for a trial run on a 12-16-h.p. Clément one Sunday morning. His services were dispensed with at 1.30, after which he was instructed to return to Leicester Street from Maida Vale, where the customer resided. Contrary to these definite instructions he took a party of friends for a ride on the car, and when near Bromley allowed one of the other occupants of the car to take the wheel, which resulted in a collision with a trap being driven from the opposite direction. The pony was so severely injured that it had to be killed, and some considerable damage was done to the trap. The owner of the trap brought an action against Mr. Lancaster, claiming £47 for damages sustained. The chief question was whether Mr. Lancaster was liable for his driver's actions, when the said driver was acting contrary to definite instructions. It was clearly proved by the evidence that the man was certainly acting without authority, and the judge held that in view of this fact no responsibility could be placed upon the employer. The result was a verdict in Mr. Lancaster's favour, with costs on the higher scale.

COMMERCIAL POINTS.

MESSRS. LANGDOWN AND CO., importers and indentors, of Christchurch, New Zealand, write to the secretary of the British Empire Motor Trades Alliance as follows:—"We note with much pleasure in the automobile papers that your Alliance has been formed for the furtherance of the sale of motors and motor accessories of all-British manufacture. This has especial interest for us in the face of the *new preferential tariff now in force*. We would be glad if you would hand our name to the members of your Alliance and get them to forward us catalogues, together with best prices f.o.b. for cash in London. We should like separate quotations for chassis and cars complete of from 5 to 16-h.p., also chassis suitable for delivery vans and omnibuses." Any replies should be sent to Messrs. Langdown and Co. direct.

THE Midland Railway Company's Thornycroft 'bus, of which we gave two views last week, has all four wheels shod with "Sirdar" solid rubber tyres, Mrs. Forsythe's winning Wolseley car, in Class III. in the Ceylon Non-Stop Motor Run, also has all tyres of the same make; while Lieut. Skelton's 12-h.p. Wolseley has these "high-speed" "Sirdar-buffer" tyres on the rear wheels.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

7298. 6th April, 1905. Improvements in or relating to Driving Mechanism for Motor Vehicles or the like. Rollin H. White 56, Hillburn Avenue, Cleveland, Ohio, U.S.A. Date under International Convention, 7th April, 1904. This is an improvement in that kind of automobile mechanism employed to transmit motion differentially from a longitudinally arranged driving-shaft to the axle sections, which are connected to the driving-wheels. It is the combination of change-speed gearing, differential gearing and clutch mechanism. There are four figures. Fig. 1 is a central sectional plan view, and Fig. 2 is a vertical sectional side elevation. A is the casing in which the whole of the gear is enclosed and mounted. The casing is formed of the parts a, a^1 , which are separable in a vertical plane at right angles to the axis of the axle section, in which plane the axis of the driving-shaft lies. These casing sections have flange-like lugs, a^2 , through which pass the bolts by which the casings are secured together. Two laterally-extended tubes, B, B¹, having flanges, b, b^1 , at their ends are secured to the casing sections. The axle sections, D, D¹, extend through the tube, B, to the casing, and they are rotated at differential speeds by gearing of ordinary construction. The axle sections pass through the drums, C, and have at their inner ends the bevel gears, d, d^1 , meshing with planet bevels, H. The axle sections are supported in ball bearings, the cups, F, F¹, having adjusting rings, J, J¹. The cones, k, k^1 , are the outer ends of the sleeves, K, which fit into the hubs, c, c^1 , of the differential drum. The

gear, c, c^1 , is formed on the outer edge of the head, c^1 . The driving shaft, M, extends into the casing through an opening in the front part, a^4 , and is provided with two cones, m, m^1 , and two cups, N, N¹, to form ball bearings for the shaft. The gear, G, has three sets of gear teeth, the level teeth, g , meshing with the bevel gear, c , the internal gear teeth, g^1 , and the external gear teeth, g^2 . On the shaft, M, is a sleeve, Q, on which is a gear, q , meshing with the internal gear, g^1 . This sleeve slides lengthwise on the shaft, and rotates therewith. When this gear meshes with the teeth, g^1 , it clutches the gear, G, and the driving-shaft together. The shaft, P, is parallel with the driving-shaft; it has a sleeve, R, slidably mounted thereon, and it carries two gears, r, r^1 , of different diameters, one of which meshes with g , and the other with the external gear teeth, g^2 , on the gear, G. The sleeve, R, has an annular groove, r^2 , which receives the pin, r^1 , passed through a rocking lever, T. The lever, T, is secured to the shaft, t , whose outer end carries the arm, r^2 , by which it may be rocked. The sleeve, R, has a groove, r^2 , which receives a pin, r^1 . The sleeve, Q, has an annular groove, q^1 , and this receives a pin, q^1 , attached to the opposite arm of the rocking lever, T. By this lever the two sleeves are caused to move in opposite directions. July 6th, 1905.

201. 4th January, 1905. Variable Speed Gearing. Thomas L. Sturtevant and Thomas J. Sturtevant, both of Harrison Square, Boston, U.S.A. In the present mechanism the low-speed train of gearing is directly connected with the driving part, without

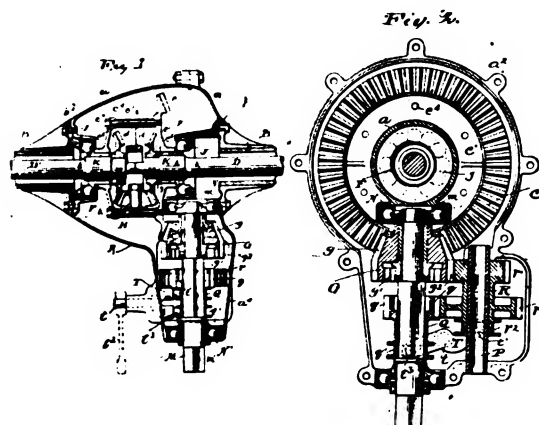
elevation, partly in section, of this mechanism; 12 denotes a portion of a motor or power-shaft having a flange, 13, bolted to a similar flange, 14, on the hub of a fly-wheel or casing, 15, having a rigidly-attached cover-plate, 16, secured to or integral with which is an exteriorly-squared sleeve. 17. On the sleeve, 17, is mounted a gear-wheel, 18, provided with a grooved sleeve, 19, adapted to slide endwise on the sleeve, 17 (which is loose on the shaft, 26), to permit the gear-wheel, 18, to be engaged with either of the gears, 20 or 21, fast on or connected with the driven-shaft, 22, which may be directly utilised for driving an automobile, boat or for other purposes, or may be provided with a pulley, 23, for transmitting power for any desired purpose. The gears, 20 and 21, are connected with the shaft, 22, by a ratchet or grip device, comprising spring-pressed friction grip rollers, 24, interposed between a hub fast on the shaft and a ring gear, 20 or 21, the ratchet or grip devices being reversely arranged in the two gear-wheels, so that one may be utilised for the forward drive of the motor or power-shaft, 12, and the other for the reverse motion, the sliding gear-wheel, 18, being shifted by a shifting arm, 33, for the forward or reverse drive, and these ratchet devices being adapted to permit the low-speed gear-wheels or gear-rings, 20 and 21, to overrun, and thus be non-operative when the high-speed clutch device is in operation. Pinned to the high-speed shaft, 26, is a clutch disc or plate, 27, with which co-operates, for the high-speed drive, a second clutch-disc or plate, 28, having shoulders engaged by shoulders on centrifugal weight, 29, pivotally mounted within the casing, 15, held in their inner or inoperative positions by springs, 30, interposed between parts of the disc and the casing, 16, of the flywheel to which the plate, 28, is fastened. When the speed of the motor is sufficient to cause the centrifugal weights, 29, to swing outward to overcome the springs, 30, the clutch-disc, 28, will be forced into frictional engagement with the clutch-disc fast on the shaft, 26, and thus the rotary movement of the motor or power-shaft and of the flywheel, 15, will be imparted to the shaft, 26, through the friction clutch discs, and the motion of the shaft, 26, will be transmitted to the driven shaft, 22, through the high-speed gears, 31 and 32, fast on the shafts, 26 and 22, respectively. Thus the changes from high-speed to low-speed and *vice versa* of the driven part or shaft will be automatically and smoothly effected in that the clutch-discs enclosed within the flywheel casing may run in oil, so that there may be more or less slip when the changes take place. July 6th, 1905.

Patent Specifications Published.

Applied for in 1905.

Published July 10th, 1905.

201. T. L. AND T. J. STURTEVANT. Variable gear.
5,540. W. H. EVERSON. Steering and propelling of motor boats.
6,163. H. GILARDONI AND H. LERICHE. Radial rotors.
7,298. R. H. WHITE. Driving mechanism.
8,548. A. DOWNS. Driving gear.
12,380. A. DECHAMPS. Tyre lever.



ends of the drum hub engage with the shoulder, k^1 , which are formed upon the sleeve by the enlarged cones, k . The drum carries the bevel gear, c , which meshes with the bevel teeth, g , on the gear, G, which is loosely mounted on the driving-shaft, M. The drum is made of two heads, c^1 and c^2 , and a cylinder, c^3 , connected by bolts, c^4 . The bevel

the intervention of a clutch-device, and the high-speed operation of the driven part or shaft is effected through a centrifugally-controlled clutch device by which, when the load or resistance permits, or when sufficient power is received from the motor or driving part, power is transmitted from the driving to the driven part. There are three figures. Fig. 1 is an

The Automotor Journal, August 5th, 1905.

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Lake Lucerne, where the big Motor Boat Meeting is announced to take place on August 19, 20, 21. It is hoped that a number of British motor boat enthusiasts will take the opportunity of visiting this magnificent spot, where everything that can conduce to the best use of a motor boat, is present. Mr. James C. Percy, so well known in the automobile world, recently wrote upon this subject as follows:—"Sitting on the banks of Lucerne watching the motor boats pass to and fro, all over the lake, suggests to my mind the great future that lies ahead of this phase of the motor industry. When I was in Switzerland eight years ago, there was no such thing as a motor boat on any of the lakes. To-day they are as common as blackberries in autumn. Of all the craft on the lake, the motor boats are the prettiest. Like a celebrated cocoa, 'they are best and go farthest.' I came across one the other day that had made a complete tour of the waters from Lucerne to Fluelen in time that put the big lake steamers to shame. Most of the motor boats here are privately owned. They are fitted up luxuriously with awnings—usually red—and, when cutting through the waters, present a perfect picture of grace, speed, and elegance. From what I can gather, the pastime is only in its infancy, and great developments are expected in this form of navigation during the next few years. Not only are the motor boats used here for pleasure, but several are brought into service for commercial purposes."

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Aug. 7 ...	Motor Boat Races, Solent (B.M.B.C.).
Aug. 8 ...	Motor Boat Races, Solent (M.Y.C.).
Aug. 9 ...	Motor Boat Races, Southampton (B.M.B.C.).
Aug. 10 ...	Motor Boat Races, Cowes (B.M.B.C.).
Aug. 11-12 ...	Motor Boat Races, Solent (M.Y.C.).
Aug. 11 or 18 ...	*Quarterly 100 Miles Trials.
Aug. 14-19 ...	Auto Cycle Club 750 Miles Reliability Trial.
Aug. 15-16 ...	Motor Boat Races, Ryde (B.M.B.C.).
Aug. 26 ...	Inter-Team Trial (Motor Cycling Club).
Sept. 2 ...	Skegness Races on Sands (Notts A.C.).
Sept. 2 ...	Auto Cycle Club, Consumption Trial.
Sept. 9 ...	Brown Cup (Motor Cycling Club).
Sept. 14 ...	*Tourist Trophy (Isle of Man).
Sept. 15 ...	*Daily Graphic Cup (Isle of Man).
Sept. 20 ...	Motor Boat Burnham-on-Crouch (B.M.B.C.).
Sept. 20, Oct. 24 ...	*Van Trials.
Sept. 23 ...	Scottish A.C. Hill Climb.
Sept. 30 ...	Auto Cycle Club Race Meeting, Crystal Palace.
Oct. 4 ...	*Speed Trials.
Oct. 7 ...	Scottish A.C. 100 Miles Run.
Oct. 14 ...	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17 ...	*Quarterly 100 Miles Trials.
Nov. 17-25 ...	Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.	
Aug. 6-7 ...	Circuit des Ardennes.
Aug. 10-16 ...	Herkomer and Bleichroder Races.
Aug. 12 ...	International Cup for Motor Boats.
Aug. 19, 20, 21 ...	Lake Lucerne Motor Boat Meeting.

* Automobile Club of Great Britain and Ireland Events and Papers.

Sept. 1 ...	Lake Geneva Motor Boat Meeting.
Sept. 2-3 ...	Ventoux Hill Climb.
Sept. 2-10 ...	Brescia Automobile Meeting.
Sept. ...	Tri-Car Competition (<i>L'Auto</i>).
Sept. 10 ...	Vincenzo-Florio Cup.
Sept. ...	Tourist Car Trial (A. C. de France).
Sept. 3-10 ...	Royan Meeting.
Sept. 11 ...	British International Cup (Motor Boats Arcachon).
Sept. 19 ...	½ Litre Consumption Trials (Motor Cycles).
Sept. 23-30 ...	Spa Automobile Club.
Sept. ...	Motor Bicycle Race (French Ardennes).
Oct. ...	Vanderbilt Cup.
Oct. 1 ...	Chateau Thierry Hill Climb.
Oct. 15 ...	Gaillon Hill Climb.

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PASSING EVENTS.

A Counter Move Needed.

TWELVE members of the House of Commons—six supporters of the Government and six members of the Opposition—who “hold strong views regarding motor cars” (one can form a vivid mental image of these gentlemen), are sending round circulars to the local Councils calling attention to the fact that the Motor Car Act will expire next year, setting forth the desirability of giving local authorities power to (as it is humourously expressed) “regulate the traffic” without the *interference* of the Local Government Board, and further advocating the bestowal of increased powers on magistrates for punishing motorists, particularly enabling them to imprison without the option of a fine. The precious circular ends up with the statement that complaints in town and country are every day increasing. The local authorities circularised are requested to reply to any of the following members of Parliament:—

Sir James Fergusson,	Mr. Rowland Barran,
Mr. Ernest Gardner,	Mr. Frederick Cawley,
Lt.-Gen. J. W. Laurie, C.B.,	Mr. F. A. Channing,
Col. C. Wyndham Murray,	Mr. Geo. Lambert,
C.B.,	Mr. E. J. Soares,
Sir Frederick Carne Rasch,	and
Mr. Brooke Robinson,	Mr. J. Cathcart Wason.

Sooner or later we shall see a general election, and we trust that all motorists will treasure the names of the twelve in vivid recollection of their propaganda. Every automobilist who places a car at the disposal for polling purposes of any one of them who seeks re-election, will be simply a traitor to the automobile cause. We would go further, and say that very special efforts ought to be made by automobilists, and particularly the Automobile Club and Motor Union, to place a splendid phalanx of automobiles at the service of whoever may happen to be opposing them. As the politics of the self-constituted board of twelve are equally divided, this will make no difference to the political situation, and the most enthusiastic partisan of either party may without hesitation adopt the line we suggest. We trust that it will be acted upon, and we shall cherish the names of the twelve members till the election approaches, and at that eventful date we shall remind our readers of the anti-motorist campaign these gentlemen have inaugurated, and repeat the suggestion which we now make.

A Shocking Example.

As a general rule we refrain from recording or commenting on the practically daily examples of flagrant injustice and contempt for the first principles of evidence, of which motorists are so regularly the victims in our police courts. It is only when an abnormally flagrant case of monstrous injustice comes before our notice that we deal with such episodes at all. Our readers will remember some of the shocking examples with which we have dealt in the past. We refer to the police trap through which every car that passed, from a modern 40-h.p. Mercedes to an ancient Daimler of the year 1896, all developed exactly 30 miles an hour, and to the case of the constable who admitted in evidence that he held up both arms as high as he could to stop the approaching car and at the *same moment* carefully took the time on his 30-shilling stop watch. These things have excited many a smile, and often

enough we have laughed over them in the hope that a day would soon dawn when such travesties of justice would be things of the past. All the nasty qualities, however, of mankind seem to be endowed with preternatural vitality, and if there is one place more than another where they flourish in unpleasant perfection, it is in the fertile soil provided by the contents of the crania of the magistrates who sit in the police court at Maidenhead. Mr. H. J. Tennant, M.P. for Berwickshire, was recently driving along the Bath Road an 18-h.p. Panhard, which was geared particularly low to enable it to tackle the Berwickshire hills. When approaching the police trap, to which he fell a victim, he was warned by another automobilist, and carefully timed himself over the 5½ miles ending in the police trap, and found that his speed only amounted to 17 miles an hour. However, the police trap was out to make a “bag,” and charged him on the strength of two constables and two cheap Swiss-made watches—which, it was shown in court, suffered from the usual defect that the holder could stop the second hand and let it go on again without its instantly returning to zero, a vital fault, which has caused them to be rejected by the Cyclists Union. The policemen of the trap swore to a speed of 30 miles an hour, and in spite of the fact that Mr. Tennant’s own evidence was corroborated by himself, by his driver, by Mrs. Tennant, and by Mr. Fowler, the other motorist who was travelling along the road behind him, the Bench believed the Swiss-made watches and constables, and fined Mr. Tennant £5 and costs.

Thus is the Road-Hog Manufactured.

It is thus that the development of the “road-hog” has been helped. The Automobile Club, the Motor Union, the automobile press, and a sensible section of the general press of the country, every rational motorist, and every single individual who has the interests of the automobile movement at heart, have for years past been doing their utmost to suppress the reckless driver and improve him out of existence. And all the time the Maidenhead and other Benches of magistrates are doing their utmost to manufacture him in large quantities. For that is what such cynical contempt for justice and the principles of evidence actually effect. It is what always happens when justice is tainted at its source. A premium is put upon law-breaking. “What,” thinks the careful considerate motorist, “is the use of my being careful and considerate when, if by any chance I drive into a police trap, whether I am proceeding at 17 or 70 miles an hour, I shall in any case be fined?” That, no doubt, is what many Benches of magistrates do, and we fear many of them will continue to act thus as long as the fines which they inflict go to the relief of the local rates. But it is a preposterous situation, that while all the best influences in the country are directed towards eliminating the reckless driver, Benches of magistrates and country policemen should in this way be putting a premium on recklessness.

A Much-Needed Measure.

WE have to thank the courtesy of the Roads Improvement Association for the draft of the Bill which has been drawn up by the Association, and which was introduced into the House of Commons last week by the Hon. Arthur Stanley. The general scope of the Association’s Bill is probably familiar to most of our readers, and it is designed to secure a number of alterations of a not

merely important, but essential character, if the movement "back to our roads," which has been the result of automobile development, should not be doomed to ultimate failure, from the breakdown of our present chaotic system of roads management. The essential features of the Bill are to provide for the following objects:—

- (1) To create a central department for the purpose of assisting the local highway authorities;
- (2) To increase largely the highway powers of the county authorities;
- (3) To provide for the construction of new main-roads through and out of the large urban districts;
- (4) To protect the interests of the ratepayers by providing that suburban districts shall be laid out according to some definite plan under which new trunk roads of adequate width shall be built and the existing ones widened before building operations commence, and so render unnecessary costly street-widening and improvement schemes, and
- (5) To amend the law relating to the maintenance of bridges.

These various points have been brought forward by the Association on previous occasions, and we have accorded the whole of them hearty support. It is unnecessary to point out any further their high importance, and we accordingly confine ourselves to the hope that this excellent Bill may ultimately find its place on the Statute Book, though it must be admitted that the prospects of any such useful measure being passed into law under existing Parliamentary conditions are far from hopeful. Of one thing, however, the promoters may doubtless feel assured, and that is the solid support of all the automobile Members of the House of Commons.

The Tourist Trophy a Subject for Amateurs.

THE majority of our readers—private car owners or prospective car owners—will doubtless have realised that a number of complicated questions are involved in the *abstract* consideration of rules for an event like the Tourist Trophy. And perhaps there may be some of them who will accordingly jump to the conclusion that the Tourist Trophy and its rules are one of those exalted and elaborate mysteries which only the expert can understand, and of which even the practical results will fail to appeal to the ordinary car owner. It would, however, be a great pity that such a mistaken idea should become at all prevalent. The amateur will perhaps be wise to abandon abstract considerations as far as possible, for a time at least, and acquaint himself instead with the results which follow from the application of the principles by actual trial with his own car. He will find the subject an interesting and fascinating one, which will very possibly cause him to learn more about motor car driving than he has known previously. Let him run his car over level roads, over undulating roads, and then in hilly country, proceeding at different speeds on each trial, and each time carefully measure his fuel consumption. He will be quite astonished at the extent to which he will find that skill and care in driving can get improved results from the same fuel consumption, and he will perhaps be almost more surprised to find how greatly the fuel consumption increases when reasonable speeds are exceeded. There is one respect, for instance, in which Trials of the kind cannot fail to be of general benefit. There are quite a number of amateurs who have failed to master the art of "timing" the ignition properly. This error in driving is not only responsible for waste of fuel and unpleasant phenomena due to the consequent high temperature of the exhaust gases, but it is also frequently the cause of the back fires which do so much to strain

and injure even the best constructed engines. Driving on fuel consumption will bring these facts home to the amateur with a force that he cannot fail to appreciate. They will teach him, also, to what an extent driving against fuel consumption brings out all the qualities of a personal kind which it is of the utmost importance that a real racing competition should put a premium on. After all, to make a race interesting, the rules should be such that judgment, skill, and instantaneous appreciation of the best methods of surmounting the difficulties that present themselves, should largely affect the result. Practical experiment, of the kind we suggest, will certainly have the effect of showing the amateur how thoroughly the principles on which the Tourist Trophy is based, do this, and will increase his interest proportionately.

When is a Trap not a Trap?

THE Chairman of the Epsom Petty Sessions, in hearing a case with which we deal in another column, was very angry because the solicitor for the defendant referred to an ambush of policemen, disguised as *honest* labourers, with their paraphernalia of stop watches and waving handkerchiefs, as a "trap," and a brother magistrate maintained that a trap involves a bait, and that there was no bait. It is exactly what everybody has complained of, that a large number of police traps are so set as to virtually constitute baited arrangements. Where there is a nice clear stretch of road in the open country, with no traffic and possibly a slight incline downhill, this amounts to bait—a bait possibly which nature or circumstances have provided—but still a bait. The only difference is that in an ordinary trap you take the bait to the trap, but in these cases the trap is taken to the bait, but the bait is there all the same.

The Light Spreading.

THERE is no more picturesque old country town than the capital of eastern Sussex—that red-tiled cluster of old-world streets that seem to climb towards the castle whose Saxon arch dates from before the Conquest, and which looked out on Simon de Montfort's great victory on behalf of freedom and enlightenment. Naturally the old town is sleepy and unprogressive to the last degree. But there is no real reason why it should remain so. It is the centre, or rather perhaps the apex, of one of the richest agricultural districts of England—essentially a land of scattered farms and hamlets where means of communication are shockingly defective. If Lewes could gather together and focus the trade of eastern Sussex, it might become prosperous and even wealthy, and there is no reason why the automobile should not enable it to do so. At any rate, the very sensible proposal was put forward recently by Councillor Riekie, that services of motor 'buses and vans should be organised for connecting up Lewes with surrounding country centres. Trade in Lewes, it was admitted, is anything but what it ought to be, though probably it is exactly what it has been for centuries. We trust the Town Council of Lewes will be sufficiently enlightened to take the plunge, and if they do so it is quite certain that neither they nor the surrounding country will be likely to regret it. A good passenger service to neighbouring points too, would probably pay, as some of the most picturesque points of eastern Sussex would be accessible to tourists, instead of remaining as at present a *terra incognita*, owing to the great difficulty in reaching them.

BLACKPOOL MOTOR MEETING.

Photo by Argent Archer.

BLACKPOOL MOTOR MEETING.—Miss Dorothy Levitt starting in the second round, Event 4, on her 80-h.p. Napier.

DETAILED TIMES FOR THE RACING CARS.

Car and Driver.	Flying Mile.					Flying Kilometre.				
	1st Run.	2nd.	3rd.	Average.		1st.	2nd.	3rd.	Average.	
	secs.	secs.	secs.	secs.	m.p.h.	secs.	secs.	secs.	secs.	m.p.h.
90-h.p. Napier (C. Earp)	38½	38½	37½*	38	94.7	23½	22½*	22½*	22.9	98.0
100-h.p. Darracq (A. Lee Guinness) ...	41½	40	40½	40½	88.7	26	24½	24½	24.9	90.0
90-h.p. Mors (Moore-Brabazon)... ..	43½	43½	42½	43	83.7	28	26	26½	26.8	83.4
100-h.p. Fiat (Cagno)	51½	48	41½	47	76.6	—	—	—	—	—
80-h.p. Napier (Miss D. Levitt)... ..	52½	52½	52½	52½	68.7	—	—	—	—	—
120-h.p. Mercedes (J. E. Hutton) ...	42½	41½	—	—	—	—	—	—	—	—

* Fastest times.

Photo by Argent Archer.

BLACKPOOL MOTOR MEETING.—View of the course from the Central Pier. Final in No. 1 Event. Thursday. Birtwistle on his 35-h.p. Daimler leading Martin on 35-h.p. Daimler.

BLACKPOOL MOTOR MEETING.—A close race between Miss Daisy Hampson on her 60-h.p. Mercedes (on the left) and Mr. E. M. C. Instone on his 35-h.p. Daimler.

DETAILED TIMES FOR THE STRIPPED TOURING CARS.

35-h.p. D
35-h.p. D
35-h.p. D
40-h.p. M
70-h.p. D
60-h.p. B
40-h.p. L
50-h.p. I
35-h.p. D
40-h.p. H
60-h.p. M
24-h.p. T
60-h.p. N
100-h.p. I

* Fastest times.

So Earp has made another record—which is the time equal to the world's best—and the good people of Blackpool are in ecstasies, chuckling to themselves over the fact that after all their beloved town has wrested away the honour which Earp but a few days ago conferred on Brighton by establishing a new British record on that track.

His exploit was a thing to be proud of, for the track is not as perfect as some have thought it. In the middle is a slight bend made worse by the crosswise slope occasioned by the approach to the pier, this being clearly seen in our photograph of the course from the Blackpool Tower. So much did this affect the chances of the competitors that it was very generally thought no new records would be established on that track. Earp, however, is a Britisher, and therefore not to be beaten. In the class racing, his speeds, though the best, were not phenomenal, and it was after these events that he essayed his great task, first making a trial run the other way of the track, then a first attempt in which his time

BLACKPOOL MOTOR MEETING.—The finishing line. The final for the Darracq Cup.

There was another grievance, too, which might easily have had serious consequences, and that was allowing people to cross the track. It would, perhaps, have been unfair to have expected those not interested in the racing to have walked about a mile out of their way just to get to the other side, but there appeared to be some lack of discretion in the exact moments at which such transmigration took place. Dogs, too, were really a serious nuisance, and Miss Dorothy Levitt, who was again driving her 80-h.p. Napier in splendid style, was a prey to the canine pest to an extent that must have reminded her of Hereford.

Once more the Daimler cars have achieved great successes, Messrs. Percy Martin, E. M. C. Instone (in spite of dogs), and A. Birtwistle sharing the honours of driving the winning cars. Out of the five events for which they entered, these cars won three and were second in the other two. Stripped touring cars give a good spectacular performance, for not being built for this work they are distinctly light on the tread and their bouncing wheels give an even greater appearance of speed than do the racers themselves—an appearance, by the way, which is not altogether so far removed from fact as might be supposed.

Although the events were so successful from some points of view, yet there appeared to be a strong feeling that a motor meeting in the middle of the Blackpool season is not an unmixed blessing. It is not unlikely, however, that all racing events will undergo some modification before next year's programme takes place.

Though a large crowd was present—the general enormous holiday crowd of Blackpool—no one who was present could help feeling that interest in the events at times flagged considerably. It is probable that this was owing to the absence of what might be called effective “stage management,” the result being that the public were very largely in ignorance of what the particular events, and their special significance, were. If events of this kind are to maintain their interest, some better means will have to be taken in future for acquainting the spectators with the particulars of the events that are being run off before them.

BLACKPOOL MOTOR MEETING.—General view of the track from the Blackpool Tower.

was $21\frac{3}{8}$ secs., and then a last try in which he bettered that time by $\frac{1}{8}$ of a second and equalled the Baras world's record established at Ostend. Earp's average speed was 104.5 miles per hour.

On the first day Cissac improved upon his Brighton performance and also made a new world's motor-cycle record by covering the flying kilometre in $25\frac{3}{8}$ secs., which is equivalent to a mean speed of 87.38 miles per hour.

Such a tremendous crowd (largely of women and children) as has, during the two days' racing, attended at the Blackpool track, has never before been equalled in size at any British motor meeting, but whether they were rewarded for their interest is entirely a personal opinion; possibly the “giants of the track” which, as an enterprising reporter has it, “flash along like torpedoes of the road” did not appeal to everyone as satisfying their best ideals of sport. Except for the racing cars proper, all the other “giants of the track” were merely touring cars in disguise, and it was, perhaps, hardly the fault of the club if several of them did not turn up, but it was undoubtedly a pity that there were so many “walk-overs” all the same.

BLACKPOOL MOTOR MEETING.—The electrical timing apparatus at work.

*Lancashire Handicap (in heats).**Course about 1½ miles.*

1. 8-h.p. Coventry Humber (L. Coatalen), 60 secs. start, won by 10½ secs.
2. 35-h.p. Daimler (A. Birtwistle), 3 secs. start.

*Motor Cycle Handicap (heats).**Course about 1½ miles.*

1. A. E. Lone (J.A.P.), 5 secs. start, won by 11½ secs.
2. J. F. Crundall (Humber), scratch.

*Special Events. Course about 1½ miles.**12-h.p. Darracq Cars.*

1. F. Jackson, 2 min. 36½ secs.
2. Mr. Bellian Davies, 3 min. 31 secs.

15-h.p. Darracq Cars (long chassis).

1. J. Keele, 2 min. 37½ secs.
2. Dr. Sindle, 2 min. 37½ secs.

15-h.p. Darracq Cars (short chassis).

1. J. Keele, 1 min. 59½ secs.
2. W. J. Wright, 2 min. 6 secs.

Darracq Cup Handicap (open to winners of above Darracq events).

1. J. Keele (15-h.p. Darracq), 42 secs. start, handicap time 68 secs.
2. J. Keele (15-h.p. Darracq), 5 secs. start, handicap time 1 min. 51½ secs.

Private Match. 1 mile.

1. H. du Cros (40-h.p. Mercedes). Won by 25 yards.
2. Nicholas Wood (50-h.p. Panhard).



SPEED contests of the kind held at Blackpool and Brighton form the subject of a very strongly-worded letter to the club Journal by Mr. Henry Norman, M.P. Mr. Norman's letter is practically a *resumé* of the arguments which we emphasized in particular on July 15th, and we are glad to find that he is so thoroughly in accord with THE AUTOMOTOR JOURNAL on this important subject.

BLACKPOOL MOTOR MEETING.—The Mayor of Blackpool and the prize winners.

*New Records.**Flying Kilometre (British Record, and equal to present World's Record).*

Earp ... 90-h.p. 6-cyl. Napier ... 21½ secs. = 104.52 m.p.h.

Flying Mile (British Record).

Earp ... 90-h.p. 6-cyl. Napier ... 37½ secs. = 96.25 m.p.h.

*Motor Cycle Records.**Flying Kilometre (World's Record).*

Cissac ... 12-h.p. Peugeot ... 25½ secs. = 87.38 m.p.h.

In tabulating the final results we have given the prize winners only for each particular event, but the time for each run of all the competitors will be found in two other tables, which are divided into Racing and Touring Classes only. In this way the regularity of running and the best times throughout both days can be compared at a glance.

BLACKPOOL MOTOR MEETING RESULTS.

*Racing Section.**Flying Mile (best average for three runs).*

1. C. Earp ... 90-h.p. Napier ... 38.07 secs. = 94.7 m.p.h.
2. A. Lee-Guinness ... 100-h.p. Darracq ... 40.70 secs. = 88.7 m.p.h.
3. Moore-Brabazon ... 90-h.p. Mors ... 43.07 secs. = 83.7 m.p.h.
4. Cagno ... 100-h.p. Fiat ... 47.07 secs. = 76.6 m.p.h.
5. Miss D. Levitt ... 80-h.p. Napier ... 52.20 secs. = 68.7 m.p.h.

Flying Kilometre (fastest time of three runs).

1. C. Earp ... 90-h.p. Napier ... 22½ secs. = 98.11 m.p.h.
2. A. Lee-Guinness ... 100-h.p. Darracq ... 24½ secs. = 91.68 m.p.h.
3. Moore-Brabazon ... 98-h.p. Mors ... 26 secs. = 86.03 m.p.h.

*Stripped Tourist Car Section.**(Cars not more than £1,250.)**Standing 1½ Miles (run off in heats).*

1. 35-h.p. Daimler (A. Birtwistle) ... 80½ secs. = 67.4 m.p.h.
2. 35-h.p. Daimler (P. Martin) ... 83½ secs. = 64.8 m.p.h.

Flying Kilometre (best average of three runs).

1. 35-h.p. Daimler (P. Martin) ... 30.5 secs. = 73.5 m.p.h.
2. 70-h.p. Darracq (A. H. Walker) ... 30.8 secs. = 72.6 m.p.h.

*(Cars not more than £1,500.)**Standing 1½ Miles (run off in heats).*

1. 35-h.p. Daimler (A. Birtwistle) ... 80 secs. = 67.5 m.p.h.
2. 35-h.p. Daimler (E. M. C. Instone) ... 81 secs. = 66.7 m.p.h.

Flying Kilometre (best average of three runs).

1. 70-h.p. Darracq (A. H. Walker) ... 29.9 secs. = 74.9 m.p.h.
2. 35-h.p. Daimler (P. Martin) ... 30.7 secs. = 72.8 m.p.h.

BLACKPOOL MOTOR MEETING.—The time-keeper's box.

THE DELAUNAY-BELLEVILLE PETROL CARS.

VERY few cars that have of recent years been put on the English market have attracted—merely by their appearance—more attention than did the Delaunay-Belleville chassis when it was exhibited in England for the first time—at the Olympia Exhibition of this year. It is not on account of any radical innovation that the chassis is remarkable—for *au fond* the car is merely an up-to-date example of the 4-cylinder chain-driven type—but it is because the details of its design render it particularly distinctive. It bears an unmistakable stamp of having been constructed by an old-established engineering firm, and altogether it is what might be expected as the product of the well-known Saint Denis Works in France, where the famous boilers are constructed. There is an elaboration in the design which at once catches the eye, and there is a solidity in the construction which gives an impression of great strength; the chassis is admittedly heavy.

The Delaunay-Belleville firm are making three sizes of chassis, viz., 16-h.p., 24-h.p., and 40-h.p., all of which are usually of the chain-driven type, although they also build the smallest model with a live axle and propeller-shaft drive instead, for those who may prefer it. In

general design, all the models are similar, so that our photographs and descriptions—which refer particularly to the 24-h.p. car—will apply in the main to all. Chief

amongst the many unusual features, which—as we have already inferred—appertain more especially to the refinements of design, are the following. The pipe-work on the engine is worthy of notice, and the system of forced lubrication is unusual. The radiator in itself calls for no comment, but its eccentric setting in

A 24-h.p. Delaunay-Belleville Car.

the circular brass case which forms the front of the bonnet, gives the finished vehicle a distinctive and, at the same time, neat appearance. The clutch itself has a simple leather-faced cone, but the arrangement of the clutch-spring, its adjustment, and the method of operation, are all very typical details which are quite in keeping with the general design as a whole. The gear-box is given a three-point suspension, and inside the gear-box, operating on the shell of the differential-gear, is a ratchet sprag. Properly speaking there is no dashboard, but the petrol tank, which is placed immediately behind the bonnet, serves as an inclined footboard, and on it are very neatly mounted the two pressure-gauges and the switch. Perhaps the most striking novelty is that the foot-brake is water-

Fig. 1.—View from the side of the 24-h.p. Delaunay-Belleville Chassis, showing the position of the petrol-tank, H, which forms the footboard.

Fig. 2.—The 24-h.p. Delaunay-Belleville Chassis, as seen from above. The large inspection-covers over the valves are visible in this view.

cooled by the circulation of water through the brake-shoes themselves, instead of by allowing it to drip into the revolving drum. Another important detail, too, is that all the bodies, which are secured to the chassis by four bolts only, are so constructed that the body can be slid backwards along the frame when these bolts have been removed.

The chassis is seen from the side, and from above, in Figs. 1 and 2 respectively, while an elevation, partly sectional, is given in Fig. 3. The frame is constructed of pressed steel, and the ends of the side members are bent inwards at the back to form part of the rearmost transverse member. In front of the dash the frame is narrower, to enable the front wheels to have a wide lock.

The construction of the under-frame, and the manner in which it is carried by the pressed steel members, passing across beneath it, is clearly shown in Fig. 11. The chassis is supported on ordinary semi-elliptic leaf springs, and a transverse spring is employed at the rear (see Fig. 2), in order to give increased flexibility of suspension. Both axles are steel stampings, having an \mathbf{I} cross-section; the front axle is of rather a curious shape, for not only is it bent downwards at the centre, but the curved portion projects forward as well. The steering gear is of the worm and sector type, and the forked steering heads, which are formed on the stub-axles, are arranged very close up to the hubs.

(To be continued.)

Fig. 3.—Side-elevation of the 24-h.p. Delaunay-Belleville Chassis, showing the gear-box in section.



A Brighton Item.—From the *Brighton Gazette* of July 29th:—

LATEST ARRIVAL: MISS BLAKER.

Congratulations to our Mayor. Another blessing born to some one. The latest arrival is, it is understood, to be called Mercedes, in honour of the Motor Week. Do be careful! If she is to live up to the name, she's bound to be fast.

ON Thursday last week, the new Merryweather self-propelled steam fire-engine, underwent an interesting trial at Worcester, doing a smart turn-out drill under Capt. Sayce. It ran to the bank of the Severn, where 35 feet of suction hose had to be laid to get water, and, in spite of the deep lift, a powerful jet was thrown over the principal tower of the Cathedral.

THE TURNER CARBURETTOR.

Three views of the carburettor are given in Fig. 1, the two upper views being taken from either side, and the lower being taken from *beneath*, looking up into the mixing-chamber (after the cover has been removed), and showing the fuel valve, B', through which the petrol is allowed to drip when the flat valve, C—shown in Fig. 2—is lifted off its seat by the suction of the engine. In Fig. 2 the other important component parts are also shown separately, while a sectional elevation of the carburettor is given in Fig. 3.

The mixing-chamber is formed by a single casting, A, which is provided with an induction-pipe, A', with main air fittings, A², and also with a fuel-pipe fitting for the attachment, B. The last-mentioned fitting is constructed in the manner shown so that an air-vent may be provided to prevent any air-bubbles from passing along to the jet. This is naturally a very important point

Fig. 1.—Three views of the Turner Carburettor, those above showing the device from either side, that below showing the interior (from beneath) and the positions of the fuel valve, B', and the throttle-valve seating, A'.

IN just the same way that the float-feed carburettor has been developed in this country and on the continent, so has there been a tendency in America to devote a considerable amount of attention to the "mixing-valve" type of carburettor, and this in spite of the great and increasing popularity which the float-feed carburettor itself has attained in that country also. "Mixing-valve" devices, which were mainly developed on account of their greater simplicity, and because they were supposed to be more suitable for use with kerosene as well as with ordinary motor spirit, have already been rendered familiar to our readers by the numerous illustrated descriptions which we have given of them, in their various forms, in the past.

The Turner Petrol Carburettor—which has just been introduced into this country by the Efandem Company—is of this type, and, like the majority of its prototypes, hails from the States, where it has already achieved considerable success. There are differences, however, which distinguish it from others that have previously come before our notice, and we have, therefore, taken photographs of it, both complete and in parts, to show the construction and action of this very simple apparatus.

The most important deviation from earlier forms is the combination of the main throttle-valve with a positive cut-off for the fuel, the whole being provided for by a flat leather-faced valve, which is automatically operated by the suction of the engine, but is subject at all times to hand regulation. The usual needle adjustment for permanently setting the effective bore of the fuel jet is, of course, retained in the Turner carburettor.

Fig. 2.—View showing the component parts of the Turner Carburettor, prominent among which are the needle valve, B', the throttle-valve, C, and the regulating mechanism, D, D', &c.

in a device like this, where the fuel is fed directly from the tank to the jet, and there is no intermediate reservoir—such as is provided by a float-feed-chamber—in which air-bubbles may rise to the surface and escape harmlessly to the atmosphere.

Fig. 3 shows the passage by which the fuel reaches the needle-valve, B¹, which can be adjusted by its small hand-wheel. The lower end of the needle forms a blunt cone and, when open, provides an annular passage for the fuel. The seating is machined inside a projecting boss cast solid with the main casting, and the boss itself has a flat surface at its lower end, so that, when the leather face of the valve, C, is pressed against it, the fuel supply is shut off—irrespective of the position of the needle-valve, B¹.

Fig. 3.—Sectional elevation through the Turner Carburettor, showing the construction of the mixing-chamber and the arrangement of the throttle-valve, C.

The valve, C, which is under the control of the spring, C², also has another seating on a ridge, A⁴, which projects, like a shelf, all round the interior of the main casting, A. When the valve, C, is closed, the lower side of the mixing chamber—which communicates with the engine through the induction pipe, A¹—is entirely shut off from the upper side, into which both the fuel and main air supplies are delivered.

Under the influence of the suction of the engine the valve, C, is drawn open, and fuel immediately begins to flow upon the face of the valve, from which it is swept off by the incoming current of air that enters the mixing chamber through the gauze-covered orifice, E¹. The main air supply pipe is fitted with a butterfly valve, E, which serves as a permanent adjustment, in the same way that the valve, B¹, does for the fuel, and by these means the best proportion between fuel and air may be established for any particular conditions of running.

It has already been mentioned that the valve, C, is controlled by the spring, C², but, in addition, a supple-

mentary spring can be brought into action when desired for throttling purposes. This supplementary spring, D³, forms part of the hand-control mechanism, which principally consists of the lever arm, D, the vertical spindle, D¹, and the rock-lever, D³.

The vertical spindle, D¹, is carried in the bracket, A⁵, which forms part of the main casting, A, and the rocking-beam, D²—which is provided with a roller, D⁴, at one end, and supports the spring, D³, at the other end—is carried by a small angular bracket, D², which is itself screwed to the lower end of the spindle, D¹. The roller, D⁴, rests on a guide-bar, C³, which is hinged both to the main casting, at C⁴, and to the lower end of the valve-spindle, C². By operating the lever, D, the spindle, D¹, may be rotated, and the roller, D⁴, brought to any desired position along the guide-bar, C³. The nearer the roller is placed to the valve-spindle, C², the more does the auxiliary spring, D³, aid the spring, C², in resisting the tendency of the suction to lift the valve, C, off its seats. When the roller is brought immediately under the end of the valve-spindle the "throttle" is closed, because the spring is made sufficiently strong to entirely overcome the suction of the engine. As the roller is moved further and further away, the suction on the valve has an ever-increasing leverage, through which to overcome the pressure of the spring, D³, until finally, when the roller is resting on the pivot, C⁴, the spring, D³, is placed out of action altogether, and the suction is allowed to have its full effect in opening the valve, which is then only subject to the control of the weak spring, C².

Compared with other carburettors of this type, it will be observed that the leather facing of the valve tends to eliminate the noise which would otherwise be caused by the periodic hammering of the valve on its seat. This valve, which entirely cuts off the fuel supply, prevents promiscuous dripping—one of the difficulties experienced in some of the early devices of this type.

Table of Reference Letters for the Turner Carburettor.

A	Mixing chamber.	C ²	Spring for C.
A ¹	Induction-pipe fitting.	C ³	Guide for D ⁴ .
A ²	Air inlet.	C ⁴	Fulcrum for C ² .
A ³	Fuel valve seat.	D	Regulating lever for C.
A ⁴	Throttle-valve seat.	D ¹	Spindle for D.
A ⁵	Bracket for regulator.	D ²	Bracket for D ¹ .
A ⁶	Detachable base.	D ³	Rock lever.
A ⁷	Drain cock.	D ⁴	Roller on D ² .
B	Fuel inlet.	D ⁵	Spring controlling D ³ .
B ¹	Fuel valve.	E	Main air regulator.
C	Throttle-valve.	E ¹	Gauze cover for A ² .
C ¹	Spindle for C.		

THE London County Council Fire Brigade Committee propose spending £1,880 on the purchase of two motor fire-escapes.

KING ALFONSO of Spain is developing a degree of independence of action absolutely paralysing to his Court, which is generally understood to be the most hidebound in etiquette of any Court in Europe. Without any warning to his entourage, who would probably have been ready with 57 major arguments, 150 minor arguments, and a couple of hundred weighty reasons why he should do nothing of the kind, His Majesty suddenly set forth at a high rate of speed in his motor car from San Sebastian. Consternation reigned. The telephones were set buzzing from one end of his Most

Christian dominions to the other, but the whereabouts of the monarch remained undiscoverable, till at last he was detected crossing the Pyrenees and finally turned up at Lourdes, where he visited the famous grotto, prayed for a number of the pilgrims present, as became "His Most Catholic Majesty," and ultimately set out again on the return journey to San Sebastian. The Government we learn are unanimous that something should be done to check His Majesty's unbridled enthusiasm, but nobody knows exactly what to do, and presumably nobody likes to be the first to do it. It will probably remain much like the resolution passed by the public meeting of mice, in favour of affixing a bell to the neck of the cat. The motion was carried *nem. con.*, but no one was willing to carry it into effect.

THE TOURIST TROPHY.

In placing the numerous communications that we have received with regard to our article on the Tourist Trophy before our readers, we take the opportunity of thanking the writers of these public contributions on the subject, and of also extending our most cordial thanks to those who, from one reason or another, do not feel free to publish their personal opinions, but have, nevertheless, written assuring us of their support, and explaining the causes for the natural reticence that they experience in the matter, at the moment. It has come as an agreeable surprise to us that so many of our readers, including most of the leading men associated with the industry, should have expressed their appreciation of our article, and it is particularly encouraging to see that the subject of the Tourist Trophy race is receiving the widespread attention that it deserves. There is no doubt that the question, when dealt with in the only way that it can be at the present time—in the abstract—is difficult and intricate, but it is to be hoped that the strong light which is thus being thrown upon it, from all and every point of view, may materially assist in its solution, and may lead to the establishment of a really satisfactory type of automobile contest, that is not only of a sufficiently simple character to appeal to everyone, but will constitute a true test of all the most desirable attributes of a perfect touring car, and will place a proper value on skilful driving.

The first of these communications appeared in our issue of last week, which also contained the concluding part—Part III—of the article to which they refer.

To facilitate reference to the various specific points upon which, in particular, our readers were invited to express their opinions, we reproduce our summary of the various suggestions put forward in the article, as also our list of the weights, measures and dimensions that are specified by the existing rules for the Tourist Trophy Race this year. Our readers will therefore be more easily able to follow the expressions of opinion contained in the following letters.

Suggested Modifications of Rules for Future Years.

- (1) The bodies to be comprised of four independent parts.
- (2) No cars to have engines with less than two cylinders.
- (3) No cars to have more than four forward "speeds."
- (4) Any obvious "freaks" may be refused entry at discretion.
- (5) Any unduly noisy car may be disqualified at discretion.
- (6) The race to extend over two, or three, consecutive days.
- (7) The cars to start, at equal time-intervals, in order of numbers.
- (8) The cars to be stopped, timed, and re-started immediately, at numerous "controls."
- (9) The cars to carry numbers denoting laps completed.
- (10) The cars to be driven by different drivers each day.
- (11) A class to be instituted for two-seated cars, to compete separately, and on other days.

Specified Weights, Measures, and Dimensions in the Existing Tourist Trophy Rules for this Year.

- (A) *Fuel Consumption*—1 gall. per 25 miles (dry, average road).
- (B) *Weight of Body and Load*—950 lbs. (including 300 lbs. ballast and 22 stone passengers).
- (C) *Weight of Chassis*.—Between 1,300 lbs. and 1,600 lbs.
- (D) *Wheel-Base*.—Not less than 7 ft. 6 ins.
- (E) *Track*.—Not less than 4 ft.
- (F) *Platform behind Dash*.—Not less than 6 ft. 6 ins. long and 2 ft. 6 ins. wide.
- (G) *Width of Seats* (each pair).—Not less than 3 ft. 4 ins. (between cushions).
- (H) *Height of Seats* (from ground).—Not less than 2 ft. 10 ins.

VIEWS AND OPINIONS OF OUR READERS.

Mr. W. Worby Beaumont:—

I have read your very excellent article on this subject. I subscribe to the following paragraph, which I quote with slight alterations from your first article: A racing event is, therefore, required for *touring* cars, but the rules must be such that no speeds undesirable or inexpedient, for touring cars can be indulged in, and that the winning cars shall be those the characteristics of which most completely meet their user's requirements, and those of other users of the roads.

It is unfortunate that the word "race" most completely describes the greatest attractions, but policy suggests that the word "competition" would more correctly describe the proposed event.

W. Worby Beaumont

Mr. John S. Napier:—

I have read with much interest your article on the "Tourist Trophy and its value to Car Owners," and have pleasure in giving my opinion on various points brought up by you.

Your suggested modification of the rules:—

1. *That the bodies be comprised of four independent parts*.—I do not see what benefit would be derived from this; in fact, I am inclined to think it would be a bad thing from a buyer's point of view, as it would increase the cost of manufacture, and, being in so many parts, would be liable to break down and give trouble.

2. *No cars to have engines with less than two cylinders*.—Here again I do not agree with you. Why should the maker of a one-cylinder engine car be excluded from the Tourist Trophy race? Surely it is for the public to say whether the article he offers is as good, or better, than those with a greater number of cylinders.

3. The same remarks apply as in No. 2.—Personally I believe that a variable change-speed-gear will come on the market, which will displace the present four-speed-gear.

4. *Any obvious freaks may be refused entry at discretion*.—I am inclined to think that the rules as to sizes can be drawn up in such a manner as to practically exclude what one might call freak; in any case, they have already been drawn up in such a manner as to exclude well-known touring cars built to-day, which may be considered freaks by the Automobile Club.

5. *Any unduly noisy car may be disqualified at discretion*.—I think this is essential. The difficulty is to gauge what is noisy and what is not.

6. *The race to extend over two or three consecutive days*.—I think this, as pointed out by you, would be better than one day's race, because it would induce more interest in it, and the general public would be more likely to come and watch the race. The small additional cost to manufacturers would not, I think, effect the entries in any way.

Nos. 7, 8, and 9 are, I think, as they should be.

10. *Cars to be driven by different drivers each day*.—This, I think, would be a hardship to most firms, as a number, I have no doubt, have not six first-class drivers capable of taking part in a race available at the time when the race is to be held.

11. *A Class to be instituted for two-seated cars to compete separately*.—I think it would be a good thing for a race to be held for small power cars, but not necessarily two-seated cars, having, say, a fuel consumption of 35 to 40 miles per gallon as a basis.

With reference to the present rules, there are only two points which I think require altering, viz. (1st) the weight of the chassis, and (2nd) the weight of the body. Naturally manufacturers for this race are endeavouring to keep the weight down to the minimum, but in my opinion it is impossible for a manufacturer to turn out a really reliable chassis suitable for touring purposes, fitted with an engine of, say, 15 to 20-h.p., and weighing only 1,300 lbs. Undoubtedly this chassis will be turned out for the race, but in my opinion, it will only be a racing chassis, and, as such, more or less of a freak, which the club are trying to prevent.

Again, with reference to the weight of the body, the rules say that the body, including lamps, rear mudguards, &c., must weigh 350 lbs. Now a large, roomy, side entrance body, built of either wood or sheet steel, will not weigh more than 3 cwt., and yet for a

small car and a light frame the Club insists on 350 lbs., which to my mind is ridiculous. If they had made the minimum weight of the chassis say 1,400 lbs. and the minimum weight of the body 250 lbs., I think they would have been nearer the mark.

I feel convinced that the rules as set down will bring forward a great number of freaks, and the manufacturer who enters his standard car for this race will, I think, have no chance of winning. It is true that the Club insists on a guarantee that the manufacturer will deliver within a reasonable time a similar chassis to the one entered in the Trials; of course, most manufacturers will be quite pleased to do this, because probably the price quoted for the chassis will be a paying one.

I feel convinced that this race, if properly managed by the Automobile Club for the benefit of the buying public, will develop into the race of the year, and it will certainly help towards the advancement of automobile science; more so, I am inclined to think, than even the Gordon-Bennett races do.



Mr. Walter G. Wilson:—

I have read the article on the Tourist Trophy with interest, and while I agree in the main with the aims that the promoters of the race have in view, I think there are several serious drawbacks to the conditions as at present laid down. For instance, I suggest that instead of making a fixed maximum quantity of petrol allowed for a car, cars should start with a given amount of petrol, that they should be allowed to take in petrol in control and penalized by having to stop so much longer in that control according to the amount of petrol taken in.

This penalty for petrol could easily be decided on, and I would suggest something between 2 and 4 mins. per pint. This would overcome any liability of a car stopping short of the winning post, except through negligence on the driver's part, and the penalty could be made severe enough to prevent high speeds.

I certainly agree with you that the race is far too short to be called a tourist event, and it seems to me that under the present conditions a very light car, with an exceedingly short life, would stand as good a chance, or better, of winning as a car made to last a considerable period. I think the penalty on too light constructions should be enforced by making the cars carry considerable more weight than they would be required to carry in actual practice. I agree with you as regards the desirability of not allowing the body to be used as part of the frame, and think that some rule, such as you suggest in modification No. 1, should be introduced. I also suggest, with a view to the encouragement of steady running, *i.e.*, good speed up hills without excessive speed down them, that all cars should be made to carry a glass screen, such as is generally used on touring cars, so as to increase the windage, the overall dimensions being specified. As wind resistance alters as the square of the speed, good engine power could be employed without any fear of the speed becoming excessive. I think it is of very great importance that this contest should be a race with a view to attract public attention and interest, and I think if my suggestion of penalising petrol consumption by so many minutes per pint were adopted, it would be possible to so regulate the contest that first man in wins, which is always an attraction. I should suggest that it be done in this manner:—Assuming the penalty to be two minutes per pint, the car to start first would be given, say, 1 gallon of petrol, two minutes after that the second car would be started with 1 gallon and 1 pint, two minutes after that the third car with 1 gallon and 2 pints, and so on. They would then have to stop at various controls to pick up their petrol, and you will see that the start given to the first cars in the form of time is given to the latter cars in the form of petrol, thereby making them all start equal. I think the manufacturers could have no objection to a long race extending over several days, but this, from the public's point of view, would not of course be so interesting. What is required is, say, 1,000 miles to wear the cars down, and then the race. The difficulties of carrying this out would, I am afraid, be very great. I think, however, that a good race could be made by running under racing conditions each day, and the cars starting with a time advantage of half of what they finished with the previous day. This would have the effect of keeping the cars close together from public interest, and would make a delay due to wear much more important than a small

accident, which might occur in the early stages of the run. It would, of course, give the steady running car a continual growing advantage over its competitors.

I shall read the discussion of the conditions of the Tourist Trophy with great interest, and shall have much pleasure in amplifying or explaining any suggestions I have made, should you wish me to do so.



Mr. Charles Jarrott:—

I have read with the greatest interest the article appearing in THE AUTOMOTOR JOURNAL on the Tourist Trophy Event. I think that the points have been dealt with in such a thorough and complete fashion by you that it would be almost presumption on my part to add anything further. At the same time there are one or two points which occur to me in connection with this event which I think require dealing with if the event is to be valuable and instructive.

The first point which occurs to me is in connection with the actual conditions in regard to weight, &c.

I think the weight of the chassis, and of the complete car, is put at much too low a figure.

It must be borne in mind that the requirements for a touring car at the present day call for the production of a car which is large and roomy, and capable of carrying four or five persons comfortably, with a certain amount of luggage.

In order to secure the carriage body being luxurious in comfort, it has necessarily to be made large and roomy. This necessitates weight.

In addition to this, it is expected that even if an excessive speed is not secured on the level, nevertheless the car should have good hill-climbing capabilities even when fully laden, thus necessitating a fairly powerful engine, this, in turn, making it necessary for the chassis to be of very strong and solid construction if it is intended that the car should stand hard wear over different kinds of roads.

All this tends to a heavier type of car, and I think that when it is put forth that the Tourist Trophy event is for competitions between cars supposed to be "ideal touring cars," even the most generous critic would say that the weight regulations err on the side of lightness, if it is intended that the vehicles that take place should be of sound commercial design and construction.

Personally, I have an idea that if a competent committee specified a minimum weight of chassis of such a design and construction as would be capable of carrying a first class touring body—as we know a touring body at the present time—and this extra weight were arranged for in the regulations by giving a larger margin for petrol consumption, that a more desirable breed of car would be obtained.

To sum the matter up briefly, I think the weights for the cars in this year's contest have been put at too low a figure.

Regarding your suggested modifications to the Rules, I think these are all excellent, and will undoubtedly tend to make the test a fairer one for the competitors. Obviously these modifications cannot be made this year, but I certainly think they deserve every consideration for next year's event.

The whole competition is one of the very greatest interest, and it is rather difficult at the present time to know exactly how it will shape. We shall know much more about it after the first trial has been made in the Isle of Man, when I have no doubt that a number of valuable lessons will be learned.

At the present stage of the industry, when speed pure and simple is discountenanced and there is at the same time a necessity for obtaining knowledge, I think that a competition of the nature of that for the Tourist Trophy is of the utmost value, and I hope that it will receive consideration on the part of the Continental manufacturers, and develop eventually into a keen international contest.



BRITISH INTERNATIONAL CUP— THE ELIMINATING RACE.

RESULTS OF THE ELIMINATING RACE FOR THE B.I.C.

Boat.	Times per Lap (5 Miles).							Total Time for Course (35 Miles).	Average Time per Lap.	Average Speed.
	1st.	2nd.	3rd.	4th.	5th.	6th.	7th.			
	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	h. m. s.	m. s.	m.p.h.
Napier II. ...	15 2½	17 50½	19 4	13 51	13 42½	13 56	13 57½	1 47 23½	15 20½	19.8
Brooke I. ...	17 43½	17 16	23 43½	19 57½						
Competitor ...	24 28½	23 0½	24 7½	27 22½						

NOTHING could have been more auspicious than the really gloriously fine day which the Fates provided for the premier motor boat race held in British waters this year. When the B.I.C. Race itself took place off Ryde last year, the weather—it will be remembered by those who were present—was equally propitious for an hour or two, and then, with a suddenness which was very disconcerting to those unprovided with suitable apparel, the rain descended in torrents, and provided a sombre setting for the fine finish of the successful but disqualified Napier Minor. This year there was naturally not the same importance attaching to the eliminating trials as would have been placed on the actual race itself, and fewer people attended in consequence.

In the forenoon the Motor Yacht Club—which body now controls the motor boat events of the A.C.G.B.I.—held a regatta for cruisers, but although the only event which did take place provided evidence of good handicapping, the result being a win for Mr. Miall-Green's Hummono, yet it was hardly of an exciting nature, and no one took very great interest in it, all being keen upon paying visits to the various racing boats lying off the pier-head.

Of the five entrants for the Eliminating Race, four were in evidence, Hutton II being the only absentee, and most of them were busy making final adjustments to their engines, it being seemingly impossible for any competitor in such events to be quite ready at any appreciable time before the event. One agreeable surprise was awaiting those interested in the presence of Brooke I. which, it will be remembered, broke a cylinder during a trial run last Monday week. It had naturally been thought impossible for this boat to be ready in time, and, in fact, as we recorded in our previous issue, Mr. Mawdsley Brooke and Capt. Corbet, the co-entrants, had already petitioned the club for a postponement of the race. As a matter of fact, however, a new cylinder was actually cast, machined and fitted in under five days, and although the engine was not tuned up properly, the boat was at least ready to start, thanks to this very creditable piece of quick work. At half-past twelve the starting gun was fired, and

competitors were then at liberty to cross the line and commence the race. Any boat not crossing within three minutes of that time being disqualified from becoming the winner (technically speaking) and from receiving the bronze replica of the Trophy which might otherwise fall to his share should he actually make the fastest run over the course.

Lieut. Mansfield Cumming's "Competitor" was first away, and nearly two minutes behind came Lord Howard de Walden's "Napier," followed after about a one-minute interval by Brooke I., the latter boat actually crossing the line after the "three minute" time limit. For the time being these were the only boats to start, and it was not until 12.51 p.m.—when Brooke I. had already completed one lap—that Napier II., with the Hon. J. Scott Montague at the helm, and Mr. Lionel de Rothschild on board, at last got away.

Almost immediately after starting, Lord Howard de Walden's Napier boat was put out of the race by a steering wire breaking, the boat running full tilt into a yawl which was lying at her moorings. Brooke I. created considerable excitement by her apparent high speed during the first lap, but her actual time does not show anything very fast, and indeed appearances were possibly somewhat deceptive owing to the extraordinary amount of bow wave and spray which this boat throws

BRITISH INTERNATIONAL CUP.—View of the Brooke-Corbet Racer, "Brooke I," just off for a trial run. This craft, which has a six-cylinder engine of enormous power, has already proved itself to be capable of attaining extremely high rates of speed, but, unfortunately—as recorded last week—one of the cylinder-heads was smashed recently, owing to the breakage of an exhaust-valve. It was however, found possible to replace the damaged cylinder in time for the race.

even speed, with a hot crankshaft bearing, so there were the two rivals for second place (Napier II. having then completed the course) "hung up" in the Solent, and both working their hardest to get under way again and complete the remainder of the course—which, however, neither of them did.

As to the "Napier II.," that boat, once going, kept on, and, overhauling both "Brooke I." and "Competitor," finally completed the full course of 35 miles in the actual running time of 1h. 47m. 23 $\frac{1}{2}$ s. giving a mean speed of 19.8 miles per hour.

From a spectacular point of view, there was

no great attraction in the race, though the tedium of the event for several of those who witnessed it was considerably relieved by the generous hospitality of Mr. S. F. Edge, represented by "skipper" Evans, on board that well-known craft, "Napier Major."

The course was certainly an improvement on that of last year from some points of view, and spectators from the pier could with reasonable clearness distinguish the boats from end to end of it, which would have added very much to the interest had there been anything very interesting to watch. At the time of going to press, the club have not made any definite announcement with regard to the result of the event, and there would appear to be several knotty points to settle, the results of the deliberations on which will, it is to be hoped, leave no room for doubt about future events of this character.



BRITISH INTERNATIONAL CUP.—Side view of the six-cylinder engine of "Brooke I." This engine, which runs at a normal speed of 900 revs. per min., has cylinders of 10 in. bore by 8 in. stroke. A special carburettor of the "Bradley" type feeds all six cylinders, the crank-shaft is a solid nickel-steel forging, and the power is transmitted to the propeller-shaft by a metal-to-metal expanding clutch.

up. From the first, her engine was never running properly, and the misfiring became worse as the race proceeded, but it was the choking of the bilge pump which finally brought Brooke I. to a standstill after completing four out of the seven rounds. In justice to Mr. Mawdsley Brooke's plucky attempt, it should be stated that he was under the impression—through official information—that the crew was limited to two men, whereas the other boats carried more than this number. Had Mr. Brooke been possessed of additional help, there is every reason to suppose that he could have kept the bilge dry with the hand-pump, or at any rate have kept the water off the ignition circuits and magneto, which was the direct cause of the final stoppage. "Competitor" also came to a standstill, after doing four complete rounds at a comparatively slow but

BLACKPOOL MOTOR MEETING.—At this meeting, four of the 35-h.p. Daimler Tourist Cars were stripped completely for racing, it being the first time that the Company have "cleared the decks" of their standard touring carriages for the purpose. Our photograph shows these speedy vehicles in all their nakedness, the cars being driven respectively by Mr. Charles Hardy, Mr. A. Birtwistle, Mr. Percy Martin, and Mr. E. M. C. Instone. Mr. Alfred Bush, who is head tester for the Company, is also in the group which we reproduce.

MOTOR BOATING.

RELIABILITY TRIALS FOR MOTOR BOATS.—The Thornycroft boat, "Capitaine," which is fitted with the Capitaine suction producer. Since describing this plant in our issue of July 1st, 8th, and 15th, Messrs. Thornycroft, who own the sole British rights, have introduced several important modifications, with which we hope to deal shortly.

Motor Yacht Club's Reliability Trials, 1905.—Delightful weather favoured the opening of this event on Wednesday, in which altogether thirty-two competitors took part, all the boats coming up to the starting point with the exception of those entered by Mr. J. M. Gorham (Daimler) (No. 16), the Fiat Motors, Limited, 40-h.p. craft (No. 23), Messrs. C. S. Rolls and Co., Limited, (No. 24), Mr. J. H. S. Phillips, 16-h.p. Vosper (No. 31), and the Kensington Motor Boat Company, 20-h.p. yacht (No. 34). All particulars of the competing boats were given by us in a full-page table last week.

Trouville, the stages were for cruisers; July 25th, Rouen to Caudebec; July 26, Caudebec to Havre; 27th, Havre-Trouville. The racers ran the same course in two stages, on July 26, Rouen-Havre; July 27, Havre-Trouville. In the racing section, La Rapière was first in the 8 metre series in 2h. 25m. 51s., and Antoinette III. second, in 2h. 37m. 43s. In the 12-18 metre class, Dubonnet was timed for 3h. 32m. 9s. In the cruiser section, the best time was made by Delahaye VI. of 3h. 23m. 44s. Dalifol I., the only fishing boat which went over the course, was timed for 7h. 14m. 1s. Altogether, 19 boats were classed over the full distance.

Coupe de Trouville.—

Although sufficient motor boats took part in this race, organised by *Les Sports*, and run between Rouen, Havre and Trouville, to make a decent showing, it can hardly be regarded as the huge success which the published list of entries would have led the public to have expected. The Gaston-Menier Cup was even more barren, the only boat which was in place to dispute its ownership being La Rapière which indulged in a "walk over" the three marine miles specified in the rules. The time given for the distance is 7m. 22s., beating Fournier's time of last year on the Hotchkiss of 8m. 27½s. For the Coupe de

Two views of the 6-h.p. Thornycroft Petrol Marine Engine, as fitted on one of the boats in the Trials. The cylinder casting for this model is identical with the well-known 24-h.p. four-cylinder engine, which is used in their latest touring cars (described with illustrations on February 15th last). The crank-chamber in a different manner however, for the valves on the smaller model are placed in line with the crank-shaft.

—The series of events in connection with the newly-inaugurated Motor Week, included several first of these was run off on Friday of last week for cruisers over a distance of 20 kiloms., nothing startling being accomplished. On Saturday a more ambitious race was competed for, viz., 100 nautical miles. This took place over a circular course of 12½ kiloms., which was covered 15 times, the first prize being secured by Dubonnet, in the time of 5h. 35m. 55s., Delahaye VI. was second, in 5h. 43m. 51s., and Dietrich II. third, in 6h. 37m. 35s.

View of the Iris marine set which is fitted to the "Iris," entered by Messrs. Perman and Co., for the Reliability Trials. The plant is constructed by Legros and Knowles, whose British-built car attracted so much attention at Olympia this year.



Smoke or Steam?—We have received a communication from the Motor Van and Wagon Users' Association pointing out that the Metropolitan police are proceeding to prosecute wholesale any steam motor wagons and tractors that may be observed emitting smoke or steam. A number of convictions in such cases have been already secured, the London County Council being the actual prosecutors, and, of course, the greater the number of cases in which convictions are obtained, the more magistrates are disposed to convict in any fresh case. The Association are accordingly anxious that all van users should put up as good a fight as possible, whether the owner of the van appears in person, or is represented by a solicitor. The Association specially points out that:—

The police have shown themselves unable to distinguish between black smoke and exhaust steam. Consequently if a driver is ever stopped by the police, and asked for his name and address on the ground that he is emitting either smoke or visible vapour, he should immediately obtain the names of at least three witnesses amongst the bystanders if possible, who would be willing to come forward as witnesses, explaining at the same time that they will be indemnified for any expense to which they may be put.

He should report the case immediately to his employers, giving the names of witnesses that he proposes to call.

The owner of the vehicle on receiving the driver's report that a prosecution is probable, should make a note of the fuel which was supplied to the vehicle on the day in question, and obtained a delivery note for it—both being intended for use in the defence.

It would appear that one of the solicitors regularly appearing on behalf of the County Council in these cases invariably asserts that convictions have been obtained in all the cases in which prosecutions have been instituted. This is an excellent ruse, and always influences the magistrates, but it is simply not the truth, and, in any case, is a statement which no solicitor ought to be allowed to make unchallenged.

A case in which a prosecution of this vexatious kind was very summarily dismissed, came before the Guildford Bench a short time ago. George Mitchell, a driver for Messrs. Plumridge and Co., of High Wycombe, was summoned for being the driver of a locomotive which did not as far as practicable consume its own

smoke. After the hearing of a lot of conflicting evidence, in which the extraordinary statements were made that if anthracite had been employed the boiler would have been fused, *and* more smoke produced, the case was dismissed. This decision is of some importance, as the Guildford Bench is notoriously non-progressive.

There is another point, too, in connection with such prosecutions. Provided the motor vehicle is *designed* not to diffuse smoke or visible vapour, a prosecution will not lie merely because it happens from some accidental or temporary cause to be emitting such products. If a vehicle is not designed to do this, it is a traction engine, and does not come under the immunity conferred by the Act of 1896, but if it is so designed it does not cease to be a motor car or light locomotive, and become a traction engine, simply because it is climbing up a hill, or because some of its arrangements are not working properly, and it therefore happens to be temporarily emitting smoke.

Visible Vapour.—A conviction has been recently obtained at Bow Street Police Court, under the Parks Regulation Act of 1872, against an automobilist whose car emitted a considerable amount of disagreeable smoke from the exhaust. The extent to which this defect in car management is increasing is becoming very serious, and is certainly not likely to benefit the automobile movement. Whether, however, it is an offence legally punishable under the motor car acts, unless it is a permanent defect of the car, is more than questionable, and it is significant that this prosecution was instituted, not under these Acts, but under the Parks' Regulation Act. At the same time it is to be hoped that motorists generally will not take advantage of the rather loose wording of the Act in this respect, as the careless diffusion of smoky exhaust is far worse than any mere technical offence against the Acts themselves—it is a serious source of annoyance to other road users, and the fertile cause of irritation and hostility to motor cars second only to the dust nuisance, and as it is avoidable it is inexcusable.

CORRESPONDENCE.

* * *The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.*

THE IVEAGH-PIRRIE IRISH SCHEME.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I have read with some surprise a paragraph on page 885 of the AUTOMOTOR JOURNAL, entitled "This Smacks of Priestcraft," and should like to know where the writer got his information. I happen to know a little about the matter, and give you the following facts: The South Riding County Council of this county (Tipperary) have three steam rollers constantly at work, and the North Riding two. The result is that every year a considerable mileage is steam-rolled, but when the Pirrie-Iveagh scheme was proposed, the County Council undertook to steam-roll specially any of the routes selected. The P.-I. Syndicate has since made no move towards establishing a service in this district (nor, as far as I can know, in any other), though the County Council have offered them the facilities above referred to. Being a motorist and a District Councillor, I take a keen interest in this matter, and know from personal experience that the motive to which you attribute the failure of the P.-I. scheme has absolutely nothing to say to it.

I regret to see that a paper of the standing of THE AUTOMOTOR JOURNAL has published such a libel on this country without having taken care to verify the statements.

Yours truly,
Ardfinnan, Co. Tipperary, FRANK MULCAHY.
26th July, 1905. HI—25.

[We would point out to our correspondent that the information on which the paragraph to which he takes objection was based, consisted of an official statement made in Parliament. We need scarcely add that we are pleased to learn from Mr. Mulcahy that the North and South Ridings of Tipperary must evidently be excluded from the general indictment.—ED.]

AN INTERNATIONAL TOURIST RUN.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—The very successful conclusion of the Siddeley v. Meyan match has suggested the possibility of a big International Competition on similar lines being run off abroad next year.

From reading the account of the route traversed by both cars, it is obvious that only vehicles of very robust construction could possibly stand the enormous strains.

I think if such an idea were started, no form of competition would be more useful or helpful to the various constructors, as a route extending over five thousand kilometres would be sure to find out the weak spots in every car entered, and at the same time, as an International Competition, it would attract enormous public interest.

The vehicles would, of course, have to be limited in horse-power, and I trust that such an event will be held, and that the first event will be run off next year. As a matter of fact, it should partake of the nature of a competition similar to the Tourist Trophy Competition which has been arranged in the Isle of Man this year, but it would have the advantage of being run over a very much longer distance and over much more severe roads with a continual change of scenery. Yours faithfully,

CHAS. JARROTT.

THE RACE MEETINGS OF 1905.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—To the genuine tourist, and to the man who is ready to purchase a car thoroughly tried in regard to reliability, staunchness, silence, and simplicity, I venture to say that the automobile events of 1905 have done nothing to improve his knowledge.

I take it that every buyer of an automobile expects to use his car chiefly for touring, which is the legitimate and most noble use a car can be put to, as it increases geographical knowledge and is world-wide in education. Yet neither the Eliminating Trials, the Gordon-Bennett, the great four-day Brighton Meeting, or the Blackpool event have assisted the tourist in his selection of the best touring car.

Races for touring cars on specially prepared tracks of a mile or so are the dulllest entertainments imaginable. Even the automobile Press of this week draws attention to the weariness and monotony of track racing with touring cars.

Competitions of cars of the same make and horse-power in a class to themselves on the track should produce very close finishes, but they only seem to centre the interest on the drivers, and the

personal equation is the principal factor. But may I ask why the following leading makes were not represented in the touring events at Brighton:—Richard Brasier, De Dion, Renault, Mors, and only two small Panhards, Napier (no touring cars), Wolseley, and Argyll.

There are more touring cars in existence of the above-mentioned makes than any other eight firms in the world, yet the great Brighton meeting failed to attract a single entry of cars of these makes. This fact clearly shows how unattractive track races are to tourist cars.

The Gordon-Bennett is dying, racing cars on the road are daily more condemned in England, and track racing will fail to attract when once the sensation of seeing a car pass at 100 m.p.h. has worn off. Blackpool was merely an invitation to lower records over a magnificent track.

We must look, therefore, to the Automobile Club's first attempt this year to encourage the genuine touring car, and I personally regret this attempt was not commenced a year ago; however the day has come when the public want a car to do a 100 miles a day, for many days consecutively. To run 100 miles on its fuel tank, and to cost no more than £100. Such a car is not, perhaps, forthcoming yet, but it is not far off, and perhaps the coming contest for the Tourist Trophy will tend to produce such a car.

I am somewhat afraid this year's Tourist Trophy can be won by a car specially built for the course and distance with a special light and fast tyre, not exactly a freak, but a car you would not choose for all-round hard knocking about on the Continent.

The fuel consumption limitation is intended to suppress monster engines, but that can be done by other regulations, and I do not attach much importance to a car that can cover five or ten miles further on a gallon of petrol when touring tanks are supplied holding fuel for 300 miles and petrol at 7d. a gallon. A limit of weight to save tyres is what the tourist wants.

In my opinion the only competition thoroughly instructive to the tourist, is the Siddeley-Meyan contest. Any car which can be driven round France under these hard conditions, without sparing the car, in the recent hot dusty weather, and at the end can survive a critical inspection and pass sound before the judges is a most desirable car for the tourist.

I am not interested in this match and am without details of the condition of the cars, but I am convinced that this is the kind of competition which touring cars should be encouraged to enter for by the Automobile Club, and as any road contest in England raises wrath, indignation and dust, I see no objection to following the Siddeley-Meyan route from Boulogne, round France, back to Boulogne, or the route taken by Cormier in a De Dion touring car prior to the Paris Salon, 1903, and let the first three cars in this competition be exhibited at the November Olympia Show. An inspection by the tourist of the best touring car would bring more orders to that firm than the winning of any of the racing events of 1905.

Yours faithfully,
July 31st, 1905. ROGER H. FULLER.

⊗ ⊗ ⊗ ⊗
The New Napier Switch.—A neat and handy switch is a great advantage on a car, for it enables the ignition to be cut off by the driver without bending down to the dash or requisitioning the services of the passenger.

The six-cylinder Napier cars are now provided with the useful little contrivance illustrated above, which is placed in the centre of the steering-wheel. When the small knob is pulled up, the current is cut off, the notched slot preventing any accidental change from "on" to "off."

RACES, RECORDS, AND TRIALS.

French Commercial Vehicle Trial.—

This very important competition, of which we have from time to time given preliminary particulars, commenced on Thursday of last week, July 27th, when the big vehicles carrying over two tons of freight were dispatched from the Tuileries at 5.30 in the evening. The competing vehicles were divided into two categories, viz., public service vehicles, and commercial goods vehicles, both of these again being sub-divided into categories, the first for vehicles carrying from 6 passengers up to 30, and the second for motor cycles carrying under 50 kilogs. of goods up to vehicles transporting over 2,000 kilogs. of freight, an additional class in both categories being provided for road trains of several vehicles. In addition, provision was made in the second category for testing wagons

FRENCH COMMERCIAL VEHICLE TRIALS.—Weighing operations at the Tuileries. The De Dion Bouton omnibus (No. 51) being weighed.

(B). *For vehicles carrying over 500 kilogs. of goods and the military wagons.*

July 28th, Paris, Creil, Compiègne, 95.5 kil.
 July 29th, Compiègne, Montdidier, Amiens, 73.7 kil.
 July 30th, Exhibition at Amiens.
 July 31st, Amiens, Blangy, Dieppe, 98.9 kil.
 August 1st and 2nd, Exhibition at Dieppe.
 August 3rd, Dieppe, Fécamp, Havre, 105.6 kil.
 August 4th, Exhibition at Havre.
 August 5th, Havre, Caudebec, Rouen, 88 kil.
 August 6th, Exhibition at Rouen.
 August 7th, Rouen, Gaillon, Mantes, 79 kil.
 August 8th, Mantes, Paris, 53.5 kil.

The Trials, which are now in full swing, appear to be resulting very satisfactorily for a large number of the competitors, the De Dietrich and De Dion vehicles appearing to be scoring particularly well. In the case of the military wagons, each one is accompanied by an officer in the army representing officially the military

FRENCH COMMERCIAL VEHICLE TRIALS.—The N.A.G. road train (No. 9).

specially built to the specification and to comply with the requirements of the French army. Altogether, 55 vehicles started in these divisions, the rest of the competitors, beyond the vehicles carrying over two tons, being dispatched on the morning of July 28th at 5 o'clock. The distances and routes were different each day for the two categories. These are clearly shown in the sketch-map which we publish this week. The stages were as follows:—

(A). *For public service vehicles, and for vehicles carrying 500 kilogs. of goods.*

July 28th, Paris, La Ferté-Milon, Soissons, Compiègne, 153 kil.
 July 29th, Compiègne, Saint-Quentin, Amiens, 148½ kil.
 July 30th, Exhibitions at Amiens.
 July 31st, Amiens, Doullens, Abbeville, Dieppe, 133.4 kil.
 Aug. 1st and 2nd, Exhibition at Dieppe.
 Aug. 3rd, Dieppe, Fécamp, Havre, 105.6 kil.
 Aug. 4th, Exhibition at Havre.
 Aug. 5th, Havre, Neufchâtel, Rouen, 150.8 kil.
 Aug. 6th, Exhibition at Rouen.
 Aug. 7th, Rouen, Gournay, Vernon, Mantes, 130.8 kil.
 Aug. 8th, Mantes, Saint-Germain, Paris, 53.5 kil.

FRENCH COMMERCIAL VEHICLE TRIALS.—Some of the military wagons. No. 81, a De Dietrich vehicle; No. 88, a Latil wagon; No. 82, the Gardner-Serpollet.

authorities, and to the successful firms important business should subsequently accrue. *En route*, some consumption tests are being made, especially in regard to the omnibuses, and as far as these have transpired the quantities consumed over the stage on July 29th (148½ kiloms.), are announced as follows:—

30-seated Eugene Brillie omnibus (No. 54), 57 litres of 50 per cent. alcohol mixture.

30-seated Mors omnibus (No. 53), 90 litres petrol.

Gardner-Serpollet omnibus (No. 47), 150 litres paraffin oil.

FOLLOWING the system adopted by the British Club during their 1,000 miles reliability test, exhibitions are being held at the chief towns visited by the competing vehicles *en route*. The importance of these trials is fully recognised on this side of the Channel, and we learn that the Motor Van and Wagon Users' Association have duly appointed a deputation to attend the exhibition of the vehicles, held on Friday of this week at Havre. It is to be hoped that when the trials are concluded, the fullest possible data of facts and figures throughout the trial will in due course be forthcoming from the French Club; they should prove of immense value to constructors and users throughout the world.

THE Spa Automobile Week, which was to commence last week, was at the last moment postponed until September 23–30, owing to the multiplicity of events at the present moment rendering doubtful the prospect of anything like an adequate number of entrants. Several other postponements or cancellations of meetings in France are also freely spoken of, a consummation to be devoutly hoped for by a number of the manufacturers and others, who find the multiplicity of organised events in various parts of the country a severer tax upon their time and pockets than it is possible for them to cope with.

Ardennes Circuit.—To-day (Saturday) the commencement of the formalities for the race on the Ardennes Circuit takes place, and it is announced in France that the two Wolseley racers will be driven respectively by the Hon. C. S. Rolls and Mr. Bianchi. Unfortunately this is not correct, as neither the Wolseley cars nor Messrs. Rolls and Bianchi will take any part in this race. There is, however, we are afraid, more truth in the statement that the three Fiat cars which were entered, to be driven by MM. Lancia, Nazzari, and Cagno respectively, have been scratched, mainly for the reason that they are to be reserved for the Brescia Automobile Week and the Vanderbilt Cup. Italy will therefore have to rely in this race on Fabry, who will drive a 100-h.p. Itala car.

Herkomer Trophy.—We recently referred to the British entries of five Daimler cars for this important event, which commences on Thursday of next week. Four of these cars are, we now learn, of 35-h.p., and are to be driven respectively by Mrs. Manville, Mr. Manville, Mr. Philip Dawson and Mr. Bush. The fifth car is of the 28-h.p. type, and Mr. Herdman Ash will be at the wheel of this carriage. The cars left London on Wednesday of this week, travelling *via* France to Munich, where the event takes place, and we heartily wish the British company success for their enterprise in competing in this Continental fixture, and hope to see them bring back the beautiful trophy, of which we gave a photograph last week.

“THE PYRENEES CUP” is the title of a contest inaugurated by the Toulouse journal *La Dépêche*. It will take place from August 20th to 27th, and is only open to touring cars.

FRENCH COMMERCIAL VEHICLE TRIAL.—Map of the itineraries for each of the classes.

THE SIDDELEY-MEYAN MATCH.

As we announced briefly last week, the reliability match between M. Paul Meyan's 24-h.p. De Dietrich and Mr. J. D. Siddeley's 18-h.p. car ended on Wednesday last in a dead heat, both cars having successfully carried out the conditions of the match. The stakes of £400 were therefore divided.

The match, which has created quite a little stir in automobile circles, both in England and France, was, it will be remembered, the outcome of a challenge by M. Paul Meyan, a French journalist, to run his 24-h.p. De Dietrich for reliability against any English made car. The challenge was promptly accepted by Mr. J. D. Siddeley, of the Wolseley Motor Car Company. The conditions provided that the cars should travel 4,400 kilometres (2,750 miles) in 15 days, in daily stages of just under 200 miles, the average speed never to be less than 15½ miles an hour. The start each day might take place as early as 5 a.m., and the car had to arrive in the last control not later than 7 p.m. Repairs of parts and tyres had to be done in the running time. The car arriving later than the prescribed time to lose the match.

The journey commenced on July 12th, and the first 1,000 kiloms. of the route, through Boulogne, Sedan, to Vesoul, were without incident, except that a fog caused both drivers to lose their way. The average pace of the Siddeley car was 22 miles an hour, including the climb over the Plombières Ridge. The De Dietrich was slightly faster. On the fourth day's run to Aix-les-Bains (330 kiloms.), the Siddeley had tyre troubles, but both cars reached Aix in good time. This day's run was through some of the most beautiful scenery, but the Dauphinois Hills were severe on tyres and brakes. The next day the competitors tackled the climb of 6,000 feet by the Mont Cenis Pass, with its winding road and hair-pin corners. The ascent was accomplished safely, though the water in the radiators boiled furiously. The drivers and passengers (a full load was carried) were able to witness the Mont Cenis Automobile Climb, at which the Queen of Italy was present. The end of the day's trip was at Embrun. The worst part of the journey was the next day's run to St. Raphael by the Col d'Allos. The road was very steep and rough, the weather terribly hot, and the corners so bad that oftentimes the cars had to be got round by use of the reverse. The drop to Puget Theniers was especially exciting, as both drivers took risks owing to a misunderstanding as to their being behind their scheduled time.

On July 18th and 19th, the journey was continued to Beziers and Luchon in the Pyrenees. Owing to a landslip, a different route from that sketched out had to be taken. The roads were bad, and punctures were frequent, whilst the heat was terrific. Added to which, the dirt-choked radiator of the Siddeley gave trouble through overheating. So done up was everyone, that on reaching Luchon, it was mutually agreed to take a day's rest and cut out the route to Bayonne, going on to Bordeaux direct on July 21st.

After this, good headway was made each day—on July 22nd from Bordeaux to Nantes, on July 23rd from Nantes to Brest, on July 24th from Brest to Granville, with a final two days' run to Paris *via* Trouville.

M. Meyan had the advantage of a faster car, so that in case of having to effect any repairs on the road, he had more time to get to his destination in the prescribed period. Despite this handicap, the Siddeley car proved its reliability and did not drop a single point. Mr. Graham White was accompanied by Mr. V. G. New as reserve driver, the mechanic Martin (who went through the 5,000 miles Siddeley trial early in the year), and an observer appointed by M. Meyan.

The total times published for the journeying of the two cars respectively over the 4,461 kiloms. is, the Siddeley car, 119h. 4m.; and M. Meyan's De Dietrich, 100h. 30m. The success of the match is considered by Mons. Meyan to be so great that he has announced his intention of carrying out his promise of arranging for a competition in 1906, and subsequent years, on a much more extended scale, in which, instead of only two participants, owners generally will be invited to join. For next year's event, No. 1 car entered is one by Mr. Siddeley, and in drawing up the rules for future events these will be modified to provide for the experience gained in the recent event.



RACES are to be held, it is announced, on the sands at Mablethorpe on Saturday, August 19th, under the auspices of the Lincolnshire A.C., in response to the invitation of the Mablethorpe Amusements Committee. Some valuable prizes are to be offered, and a firm and clean course of 1,000 yards, it is stated, is available on the sands.

BEACH races are also, it is proposed, to be organised at Lytham in September. Support has been promised in the district by Squire Clifton, and Mr. Huntley Walker is reported to have given it as his opinion that the track along the Esplanade is an ideal one. A public meeting is being convened for Thursday of next week to discuss the details of the proposals.

FRENCH COMMERCIAL VEHICLE TRIALS.—A type of wagon entered to comply with the military requirements. No. 88, the Latil wagon.

First heat of the Starting and Stopping Race.

Coventry Gymkhana.—The Midland A.C. held a very successful gymkhana at Coventry, last Saturday, in aid of the local hospital. The arrangements were in the hands of Messrs. C. Vernon Pugh, T. H. Ryland, Alfred Herbert, and other prominent Midland motorists, and the meeting was attended by 25 cars, including entries from London, amongst these being a 30-h.p. Ariel, driven by Miss Godwin, and an 18-h.p. Mercedes, driven by Mr. H. du Cros, Jun. The events included balancing, driving from and returning to the coach-house, starting and

Ladies' Passenger Race.

Bogus Speed-Limit Boards.—An amusing example of the length to which local authorities will exceed their powers, especially when inspired by motorphobia—a painful disease very prevalent amongst these bodies—was recently discovered in Denbighshire. Without having obtained any authority from the Local Government Board, the Denbigh County Council had had a notice board erected on a road near Wrexham giving all and sundry to understand that motor cars were not permitted to proceed at more than 10 miles an hour.

Balancing. Mr. Frederic Coleman with his White Steam Car on the platform.

stopping, and ladies passenger race. Although the weather was rather threatening, the rain fortunately held off during the afternoon, and there was a very large and fashionable gathering of spectators. A feature of the afternoon was provided by the Wolseley Gordon-Bennett racer, with which an exhibition of speed-driving was given in the intervals. The Daimler cars, which performed so well at Blackpool, were also present, and ran round.

Another aspirant for the honour of the first prize.

The local correspondent of the Motor Union wrote to the secretary of that body to enquire whether the Local Government Board had ordained the 10-mile limit in the district, and was, of course, informed that nothing of the kind had taken place. The result has been that the County Council has now removed their 10-mile limit board and replaced it by a danger post! It is to be hoped that anyone observing similar notices throughout the country will take steps to test their legality.

Messrs. E. W. Kennard, H. Du Cros, junior, and W. Du Cros, are critical spectators.

The Gordon-Bennett Wolseley racer is a source of much interest and admiration.

COVENTRY GYMKHANA.

CLUBS AND ASSOCIATIONS.

MOTOR GYMKHANA AT BOURNE END BY THE BRITISH MOTOR BOAT CLUB.—View at the landing stage, the boat on the left being Capt. Owen's "Thrasher."

Motor Boat Club.—A motor boat gymkhana was organised by the club at Bourne End, but, unfortunately, for one reason and another, only two boats actually took part in the four contests which were down on the programme, these being Mr. Desnoss's Lookout, and Captain Owen's big launch, Thrasher. Mrs. Desnoss was the winner of the Serpentine event against Miss Bianchi. The Taking Up and Landing Passengers Race was secured by Mr. E. Carr, who steered Captain Owen's Thrasher, the Serpentine Stern First event went to Mr. Desnoss, and Captain Owen was the winner in the Obstacle Race. It is only to be regretted that a few of the splendid motor craft which passed up and down the river during the running of the events could not have been induced to join in what should have been a most successful and enjoyable afternoon's amusement.

The Automobile Mutual Protection Association.—On Tuesday, at the last meeting of the Council before the holidays, the president, the Earl of Shrewsbury and Talbot, occupied the chair. It was resolved that the Report on "Dustless Roads," presented by Mr. Douglas Mackenzie, the assistant secretary, should be re-arranged and circulated to the Press at an early date. A donation of five guineas was voted to the Roads Improvement Association in connection with the intended laying of an experimental strip of dustless road materials in Hyde Park.

East Surrey A.C.—The August run of the club will be held on Saturday afternoon, August 12th. The meet will be held at the Hotel, Leith Hill. Tea from 4.30 to 5.30.

Leicester A.C.—A specially interesting outing took place amongst the members of this club on Saturday last, when a visit was paid to the Abbey of Mount St. Bernard, near Coalville, arrangements having been made at this point to meet the Derby club. A sprinkling of rain had to a certain extent mitigated the dust nuisance, and the occupants of the fifteen cars which made the journey, either by Groby and Markfield, or via Loughborough, were well rewarded for joining in the outing. The Derby motorists had, however, an unpleasant experience when passing through Shepshed where some dear, sweet, unsophisticated little children, by way of amusing themselves in their usual playground—the road—showered a perfect volley of stones at the occupants of the cars when passing, a pastime which has no doubt been quite legitimatised in consequence of the teachings of such lights as Canon Greenwell and Sir Ralph Payne Galwey. The monastery was visited, and, under the guidance of Father Jerome, the male portion of the party were permitted to visit the Abbey itself, the ladies, however, being rigidly excluded from all parts of the building, except the chapel and the bazaar. Subsequently, tea was taken at High Tor Farm, prior to a return on the homeward journey at 8 o'clock.

Sheffield A.C.—In spite of the rain, which somewhat marred the pleasure of the participants towards the latter part of the programme, the gymkhana organised by the Sheffield Club at the Niagara Grounds, Wadsley Bridge, last week, was voted a decided success. Although the function was more of a social gathering for the members of the club and their friends, a good outside attendance was brought together in addition. Fortunately, the rain held off sufficiently to allow most of the events to be successfully concluded, although the final contest was run off amid a downpour. The events were judged by Mr. Alderman Clegg, and the prizes were distributed to the successful competitors by Mrs. Wilkinson. The timekeepers were Messrs. G. D. Flather and J. R. Wade, and the committee, who acted as stewards, were Messrs. R. Brown, C. A. Clarke, J. E. Evans, T. H. Firth, A. F. Fletcher, M. E. H. Hill, P. R. Thompson, J. R. Wade, W. Watts, and Dr. Thorne, with Mr. Fred B. Cawood as hon. secretary. The programme was considerably enhanced by the performance during the afternoon of an excellent selection of music by the band of the 2nd King's Own Yorkshire Light Infantry. The programme consisted of the usual items in an entertainment of this character, the Bending Race appearing to give particular satisfaction to the visitors, his being won in the final by Mr. Schwab (6-h.p. De Dion) in 34½ secs. Keen contests were witnessed throughout, particularly in the Starting and Stopping Race, which fell to Mr. A. S. Fawcett. The Lady Passenger Race was won by Mr. Schwab, Mr. T. H. Firth (12-h.p. Wolseley) securing first place in Tilting at the Ring. The 3 mins. allowed for balancing a car on the rocking platform was too short a time for the majority of the competitors, Mr. Schwab again scoring in this event, and being the only one who successfully accomplished the feat. The Crawling Race was a thing to behold, the ultimate winner being Mr. O'Connor Parsons (12-h.p. Swift) who managed to eat up 5m. 43s. in covering the 100 yards. Other events were a Reversing Race, in which Mr. W. H. Dixon (16-h.p. Clement) was successful, a Motor Coach-house Race, which fell to Mr. James Barber (20-h.p. Belsize), and a Lady Passengers' Hockey Match, secured by Mr. T. H. Firth. An interesting competition for members' drivers, for taking off and putting on a tyre, was divided between the chauffeurs of Mrs. Wilkinson, Messrs. Coupe and Firth.

Society of Motor Manufacturers and Traders.—At the first ballot for space and positions at Olympia, in November next, the number of stands dealt with was 165, including, besides motor cars, commercial vehicles, motor boats, accessories, carriage work, tyres and machinery. In addition to the best known British manufacturers, representatives of many famous Continental and American firms were present. The total amount of space allotted was about 100,000 square feet, which is about three-quarters of the space available. There are numerous applications (rather too numerous, in fact) for the remaining space, for which a ballot will shortly be arranged.

A typical road in Cuba.

A pontoon bridge at Havana.

A Cuban hotel at Guanajay.

Castella de la Panta, Havana.

A pineapple plantation.

Carretera del Cementerio, Havana, showing an example
of the local means of transportation.

IN CUBA ON A WHITE STEAM CAR.

THE Lancashire County Council are about to expend £500 in dust-laying experiments.

At a recent meeting of the Bradford Technical College, the Mayor, in the course of an address, said that he and Professor Charnock had made up their minds that in future they would endeavour to provide instruction in motor car driving and construction for the members of the College.

THE line of motor'buses running between Birmingham and Harborne has, we learn, been withdrawn, the Company reverting to horse-drawn vehicles. The reason given by those responsible is that the wear and tear on the rubber tyres is too great to allow of the motors being run at a profit, the roads which the vehicles have to traverse being exceptionally severe on tyres.

IN a recent case in which a motor car driver was arraigned before him for being drunk when in charge of a car, Mr. Horace Smith commented on the absurdity of the position which, while enabling him to fine automobilists up to £10 and £20 for quite trivial offences against the Act, only enabled him to inflict a penalty of 40s. in the case of such a serious offence as this.

A GENEROUS offer has been made to the London County Council by Mr. Bischoffsheim to provide an electric motor ambulance for use in the Metropolis. Mr. Bischoffsheim's philanthropy was called into play in this particular direction by witnessing an accident, many years ago, in which a painter fell from a scaffold on to the pavement. Mr. Bischoffsheim was disgusted at the crude and barbarous manner in which the unfortunate man was bundled into a cab by a policeman. He has never forgotten the incident, and now, when the electromobile provides an ideal form of ambulance, he generously provides one for use in London.

A PLEASING contrast to the travesty of justice, on which we comment editorially this week, is provided by some proceedings which took place before the Epsom Bench, a Court which has been generally distinguished by fairness and accurate weighing of the evidence put before it. Mr. G. C. Smith, of 84, Vanburgh Park, Blackheath, was summoned on the usual charge of driving a motor car at a speed exceeding 20 miles an hour—to wit, 26 miles 828 yards—a piece of elaborate calculation which shows that the general educative effect of the automobile movement is spreading even to the police, who two years ago would certainly not have been able to get out a calculation of this kind. There was the usual hard swearing, and attempts to keep the stop watches with which the police were provided from being examined. It so happened, however, that Mr. Smith's car was furnished with one of the speed indicators manufactured by his namesake, the celebrated watch and chronometer makers, of the Strand, and he was able to produce evidence that this instrument, of whose reliability the magistrates were convinced, had never indicated a speed in excess of 18 miles an hour. The result was that the case was dismissed, a valuable testimonial both to speed indicators and the good sense of the Epsom magistrates.

Field-Marshal Lord Roberts's motor car. The vehicle is an 18-h.p. Napier carriage, specially designed for Lord Roberts, with Limousine top and canopy, which is easily removable. Earl Roberts joined the ranks of automobilists some months ago.

MOTOR CYCLING.

Irish Motor Cycle Union, Speed Trials at Portmarnock.—On Saturday afternoon the members of the Union held the third of the series of speed trials at Portmarnock. The programme was made up of a mile novice's race confined to members, and a ten miles handicap for a silver cup presented by Mr. Hampton Shaw, C.E., one of the vice-presidents of the Union. As on a former occasion the mile handicap was divided into heats, according to the horse-power of the machines, and a handicap framed on the ground for the final. A regrettable feature occurred in connection with the meeting, inasmuch as exception was taken to the machines driven by Messrs. C. B. Franklin and A. E. Bannister, and after consultation it was decided to submit the machines for examination to Messrs. J. MacCabe, B.E.T.C.D., and Vincent Mayne. After investigation it was announced that Mr. Franklin's mount was slightly under the measurement stated on the entry and passed at once, but the body of the cylinder of Mr. Bannister's Minerva was four millimetres over the measurement, and under the circumstance the judges referred the matter to the committee, and no decision was arrived at as to the result of the Shaw Cup.

The following were the results:—

One Mile Handicap, Novice.

1. S. Black...	2-h.p. Triumph...	25 secs.
2. R. Howison	2½-h.p. F. N.	10 secs.
3. G. Metcalfe	3-h.p. Centaur	15 secs.

Won by 4 secs. ; 7 secs. between second and third. Time, 2 min. 1 sec.

One Mile Handicap (Members). For machines up to but not over 3½-h.p. Heats decided according to h.p., and handicap framed for final heat.

		Handicap.	Heat times.
		secs.	min. secs.
1. A. E. Bannister	Minerva	25	1 50
2. J. G. Drury	Triumph	10	1 42
3. C. B. Franklin	Oriel	15	walk over.

Won by 1 sec. ; 4 secs. between second and third. Time, 1 min. 54 secs.

Ten Miles Members' Handicap (Shaw Cup).

1. A. E. Bannister	2-h.p. Minerva	5 min. 0 secs.
2. C. B. Franklin	2½-h.p. F.N.	scratch.
3. A. Summers	3-h.p. Triumph	1 min. 40 secs.

Won a good race by 6 secs. ; 5 secs. between second and third. Winner's time, 20 min. 38½ secs.

Brighton Race Meeting—In our report of the Brighton meeting, by a slip, we gave the horse-power of Mr. G. A. Barnes's machine, which he rode against Cissac's 12-h.p. motor bicycle and secured second place, as 10-h.p. This should have been 4-h.p.

BLACKPOOL MOTOR MEETING.—The ambulance Wolseley Car which patrolled the side of the course during the whole meeting.

THE "Vanguard" line of motor omnibuses, which has been running so successfully from Brondesbury to the Law Courts, is now being diverted at Wellington Street, Strand, and extended to the Elephant and Castle as the other end of the route. Already twenty-six of these cars are running, and it looks therefore, with Messrs. Tillings' buses in full swing, as if the south of London were securing more than its fair share of the increased facilities for getting about town.

SINCE 1902, the Roads Improvements Association has consistently and persistently advocated the adoption of a traffic regulation in the Metropolis, which should compel all slow-moving traffic to keep as close as possible to the kerb. In the City there is a by-law to this effect, which the police, as far as possible, enforce, but in the other districts of the Metropolis the police have no power. It is therefore satisfactory to find that the recent Royal Commission on London traffic advocates a by-law to this effect, and state it as their opinion that its adoption would do much to diminish the congestion of traffic. As they admit, its effectiveness would be largely diminished by the great number of vehicles permitted to stand at the sides of streets, practically as long as they choose, and it would therefore appear that there is also need of an ordinance limiting the length of time during which stationary vehicles are thus permitted to impede the traffic. In any case the unloading of goods in this way ought not, under any circumstances, to be permitted in important thoroughfares during the busy hours of the day.

WE learn from the neighbourhood of Morecambe Bay of an exciting adventure which occurred to a Carnforth motorist,

Mr. Barton. When crossing the sands on Saturday afternoon last, where they were apparently firm and hard, he ran his car into a quicksand, from which it was only with difficulty extricated by a posse of some forty volunteers, who happened, most fortunately for Mr. Barton, to be in the neighbourhood. To make the story complete, we ought ultimately to learn that the stretch of sand in question was included in a police trap, and that, in spite of Mr. Barton's immersion in the quicksand he has been summoned and convicted for travelling through it at precisely 30 miles an hour by the stop-watch!

THE executive of that egregious organisation, the Highways Protection League, have drafted a programme of changes which they would like in the Motor Car Act. Amongst the things that the highway protectors desire to see introduced are the following:—1. A reduction of speed. 2. Easier means of ascertaining the identity of owners. 3. Stringent regulations to prevent blinding headlights, dust, and noise. 4. Wider discretion to local authorities for regulating motor traffic.

A Sir James Ferguson, speaking at a recent meeting of the League, declared that "It has come to be said that you can kill a child at the risk of four months' imprisonment." A further suggestion was made that magistrates should be empowered to impound motor cars. We should like to know who this statement has been made by. Is it by Sir James Ferguson or his friends, or has it really been made at all? If it has, we can only say, as is often done across the floor of the House of Commons, "Name!"

A SPECIAL motor car has been provided for the use of the Osborne House Convalescent Home for Officers, and has been approved by His Majesty King Edward.

"Enigmarelle," the mechanical man, on a 9-h.p. Oldsmobile seeking refuge in Messrs. Charles Jarrott and Letts' premises in Great Marlborough Street after appearing at the Police Court to answer a summons for obstruction. We referred last week to this incident.

NEW COMPANIES REGISTERED.

Automobile Guarantee Syndicate (Limited).—Capital, £3,000 in £1 shares.

Blackpool Motor Garage and General Engineering Company (Limited), Clifton Chambers, West Street, Blackpool.—Capital, £20,000 in £1 shares (10,000 six per cent. cumulative preference). Object, to acquire the business carried on by R. Riley, of Abingdon Street and Back Eaves Street, Blackpool, and the assets of the Blackpool Engineering Works (Limited), of New Road, Blackpool. First directors, the Hon. Arthur C. Ponsonby, R. Riley, R. B. Mather, T. Bickerstaffe, J. Sharp, and J. Heap, J.P.

City and Suburban Motor-Omnibus Company (Limited).—Capital, £10,000 in 9,000 ordinary shares of £1 each and 8,000 deferred shares of 2s. 6d. each. First directors, A. L. Caporn, W. Harfey, and D. Morris.

Motor Pneumatic Tyre Company (Limited).—Capital, £150,000 in £1 shares.

Motor Transit Trust (Limited), 70, Cornhill, E.C.—Capital, £5,100 in 5,000 "A" shares of £1 each and 2,000 "B" shares of 1s. each.

Peterborough Motor-Bus Company, (Limited), 4, Cross Street, Peterborough.—Capital, £5,000 in £1 shares.

Quick Car Company (Limited), 69, Victoria Street, Westminster.—Capital, £20,000 in £1 shares (10,000 preference).

Southend-on-Sea and District Motor-Omnibus Company (Limited), 105, Broadway High Street, Southend-on-Sea.—Capital, £10,000 in £1 shares. First directors, J. Sellar (chairman), C. Cripps (managing director), F. Davey, W. J. Ellis, G. Jackaman, F. Knight, W. Neil, and J. Pettitt.

The Scotia Motor and Engineering Company (Limited), 194, St. Vincent Street, Glasgow.—Capital, £20,000 in £1 shares.

Vining-Hallett Motor Manufacturing Company (Limited), Grosvenor Road, West Ealing. Capital, £15,000 in £1 shares. R. W. Vining is the first managing director.

West (Limited).—Capital, £15,000 in £1 shares (5,000 preference). Object, to acquire (1) the undertaking of the West London Motor Company, Limited, and (2) the undertaking of E. J. West and Co., Limited. First directors, Colonel S. M. Jupp (chairman), S. D. Begbie, E. J. West, and B. M. Tomlinson.



COMMERCIAL POINTS.

IN connection with the recent Brighton Speed Trials several of the best times were made by vehicles using Pratt's Motor Spirit as fuel. Amongst these were the following, all best times:—

Standing Kilometre.—Mr. A. Lee Guinness, on his 100-h.p. Darracq, in 35½ secs.; Mr. H. Rignold, on his 12-h.p. Peugeot motor cycle, in 36½ secs.

Flying Kilometre.—M. H. Cissac, on a 12-h.p. Peugeot motor cycle, in 26 secs.

Flying Mile.—Mr. Rignold, on a 12-h.p. Peugeot, in 46½ secs.

Standing Mile.—M. Cissac reduced the standing mile record to 53½ secs.

THROUGH one of their Continental agents, Messrs. Charles Jarrott and Lettis, Limited, learn that in the Ostend races the Oldsmobile won the following prizes:—Three gold medals, one silver medal, and one bronze medal, the second prize for decorated cars, and one special mention for the best coachwork.

THE business of the "Otto-Bennett" Motor Company, until recently carried on by Messrs. Otto and Bennett, at 8, Snow Hill, E.C., has been acquired by Mr. S. D. Rose, A.M.I.Mech.E., who will continue trading at the same address under the title of the "Otto-Bennett" Motor and Engineering Company. The new firm is specialising in the well known and deservedly popular Sée bands, and their present facilities enable them to deliver promptly. Sée-Continental non-skid tyres are also one of their leading lines.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

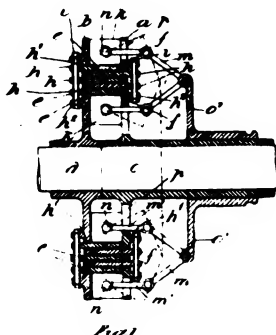
The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

19073. 5th September, 1904. Improvements in Steam Generators for Motor Vehicles. Elijah Perkins, Rose Bank, Moorton Avenue, Levenshulme, and John B. Rowcliffe, Mersey Bank, Didsbury, Manchester. This invention relates to improvements in steam generators for heavy motor-vehicle, the object being an improved construction of generator in which inequality of expansion of the parts is avoided and greater heating surface is obtained. There is one drawing, a sec-

tion of the shell by an angular bend. From the second plate, *g*, rises an inner enlarged shell, *j*, the two enlarged shells being secured together at their upper ends by a channelled ring, *k*. Located between the two enlarged shells and in line with or a little above the vertical combustion tubes, *h*, is arranged a number of inclined combustion tubes, *l*, adapted to conduct the gases rising up the vertical tubes back again in a downward direction towards the smoke box or combustion-chamber, *m*, which is arranged to

plate at the apex is flanged somewhat to fit into the tube. The hole in the outer plate may be stopped up by a cap, *q*. July 13th, 1905.

12279. 30th May, 1904. Improvements in and relating to Friction Clutches and similar Devices. Frank Baker, 5, Lea Park, Blackheath. This invention relates to friction clutches, and has for its object to provide a friction clutch having a relatively greater area of frictional surface. The invention is also applicable to brakes where the respective members have the reverse functions to those they have when used in a clutch proper. There are four figures, of which Fig. 1 is a sectional elevation. Two discs, *a* and *b*, are mounted respectively upon the driving and driven shafts, *c* and *d*, which are oppositely disposed. Upon each of these discs, *a* and *b*, are mounted two, three, or more circumferential series of segmental brake blocks, *e*, *f*, perpendicular to the inner face of the disc, concentric with the shaft, *c* or *d*, upon which the disc is mounted, each series being thus in circumferential line, but having spaces between the respective blocks. Each of the segmental blocks or rings is mounted on a pin or bolt, *i*, the rings having lugs, *h*, passing through holes, *h*, of a corresponding shape provided in the discs to secure them. Three such shoulders or lugs are provided and two holes in the discs. The discs on the pins, *i*, passing through holes are loosely mounted in lugs, *h*, upon the clutch discs, the amount of play allowed being such as to permit the segmental blocks or rings of the respective series to be brought into frictional contact one with the other. The pins have spiral springs mounted upon them interposed between the lugs or shoulders, *h*. Two segmental blocks, *k*, are provided with a corresponding number of sets of toggle levers, *m*, lying around the segmental rings, *e*, *f*. The continuous ends of the segmental blocks, *k*, are connected together by means of a pin, *n*, to which a member, *m*, of one of the set of toggle levers, *m*, is connected. Each set of toggle levers consists of two members, *m*, and two members, *m*; these members, *m*, each have one end connected to a segmental block, *k*, the opposite end being connected to one or other of the two toggle links, *m*, connected to an arm, *o*, on the sliding operating sleeve. Each of the members, *m*, passes through holes, *p*, provided in the disc, *a*. In operation as the sleeve approaches the clutch the toggle levers will separate. July 13th, 1905.



tion. A cylindrical or other shaped furnace, *a*, is adapted to be fed with fuel either from the side of the furnace, through a feeding door, *b*, or from the top, the furnace being surrounded by an outer shell, *c*, with a space, *d*, between the two for allowing circulation of water. The top plate, *e*, of the furnace is provided with a central fuel-feeding tube, *f*, the upper end of which is supported by a second plate, *g*, between which and the top of the furnace and surrounding the central feeding tube are a number of combustion tubes, *h*. Attached to the outer cylindrical shell, *c*, is a second shell, *i*, joining the smaller

surround the largest of the enlarged shells, *i*. Both the vertical tubes and the inclined tubes are submerged in the water when the boiler is working, so that a greatly enlarged evaporative surface is obtained. The inner of the enlarged boiler shells, *j*, forms an annular chamber, *n*, into which the products of combustion from the vertical tubes, *h*, enter. This chamber is closed by a loosely fitting lid, consisting of two conical plates, *o*. The outer plate rests on the top edge of the cylindrical shell, *j*, or on an angle ring, *p*. The inner plate *o* at the apex passes over the central feeding tube, *f*, whilst the external

The Automotor Journal, August 12th, 1905.

THE AUTOMOTOR JOURNAL

A RECORD AND REVIEW OF APPLIED AUTOMATIC LOCOMOTION.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Aug. 11-12 ...	Motor Boat Races, Solent (M.Y.C.).
Aug. 14-19 ...	Auto Cycle Club 750 Miles Reliability Trial.
Aug. 15-16 ...	Motor Boat Races, Ryde (B.M.B.C.).
Aug. 26 ...	Inter-Team Trial (Motor Cycling Club).
Sept. 2 ...	Skegness Races on Sands (Notts A.C.).
Sept. 2 ...	Auto Cycle Club, Consumption Trial.
Sept. 9 ...	Brown Cup (Motor Cycling Club).
Sept. 14 ...	*Tourist Trophy (Isle of Man).
Sept. 15 ...	*Daily Graphic Cup (Isle of Man).
Sept. 20 ...	Motor Boat Burnham-on-Crouch (B.M.B.C.).
Sept. 20, Oct. 24	*Van Trials.
Sept. 23 ...	Scottish A.C. Hill Climb.
Sept. 30 ...	Auto Cycle Club Race Meeting, Crystal Palace.
Oct. 4 ...	*Speed Trials.
Oct. 7 ...	Scottish A.C. 100 Miles Run.
Oct. 14 ...	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17	*Quarterly 100 Miles Trials.
Nov. 17-25 ...	Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.	
Aug. 10-16 ...	Herkomer and Bleichroder Races.
Aug. 19, 20, 21	Lake Lucerne Motor Boat Meeting.
Sept. 1 ...	Lake Geneva Motor Boat Meeting.
Sept. 2-10 ...	Brescia Automobile Meeting.
Sept. ...	Tri-Car Competition (L'Auto).
Sept. 10 ...	Vincenzo Florio Cup.

Automobile Club of Great Britain and Ireland Events and Papers.

Sept. ...	Tourist Car Trial (A. C. de France).
Sept. 3-10 ...	Royan Meeting.
Sept. 11 ...	British International Cup (Motor Boats Arcachon).
Sept. 16-17 ...	Ventoux Hill Climb.
Sept. 19 ...	½ Litre Consumption Trials (Motor Cycles).
Sept. 23-30 ...	Spa Automobile Club.
Sept. ...	Motor Bicycle Race (French Ardennes).
Oct. ...	Vanderbilt Cup.
Oct. 1 ...	Chateau Thierry Hill Climb.
Oct. 15 ...	Gaillon Hill Climb.

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PASSING EVENTS.

The Personality of the Commission.

THERE will be general satisfaction with the personality of the Commission which has been appointed to enquire into and report upon the working of the Motor Car Acts. The members appointed are the following :—

Viscount Selby, late Speaker of the House of Commons, chairman ;
The Marquis of Winchester ;
Mr. E. R. Henry, Chief Commissioner of Police ;
Sir William Forwood, chairman of the Liverpool Quarter Sessions, and a director of the Cunard Steamship Company ;
Mr. W. J. Mure, an Edinburgh advocate ;
Mr. Munro, representative of the Local Government Board ; and
A representative of Ireland.

The late Speaker of the House of Commons has been so long and favourably known to the public by his family name, that possibly some readers may fail to recognise him under his title in the Peerage, but throughout his long record in Parliament as Mr. Gully, he has become almost identified with the idea of absolute impartiality, and as sound and commonsense judgment on all questions submitted to him as distinguishes any judge upon the bench. Mr. Munro has been favourably known to motorists in connection with the administration of the present Act, having held office as Assistant Secretary to the Local Government Board for a considerable time, during which period he has had to hold enquiries on various applications for the imposition of the 10 mile limit, in all of which he distinguished himself by the strictest impartiality and good sense. On the whole, without being a pronounced motorist, Mr. Munro may be looked upon as favourable to the automobile cause. Of the opinions of the Marquis of Winchester and Sir William Forwood, who are Chairmen of Quarter Sessions in the south and north of the country respectively, little apparently is known—but they are Chairmen of Quarter Sessions. In the chairmanship of Viscount Selby, however, we have the most absolute guarantee for the impartiality in the proceedings which the Commission will conduct, and the practical certainty that its report will be in accord with the evidence put before it.

The Duty of Everybody.

It is superfluous to point out the enormous influence which the deliberations of the Commission are practically certain to exercise on future automobile legislation in this country, and, in consequence, on the future of the automobile movement. However satisfactory a Commission may be, however determined to deal fairly and justly with the questions which have been referred to it, it can only take cognisance of this evidence, and it is therefore of the utmost importance that the automobile case should be put strongly and clearly and eloquently before it. No amount of trouble or expense should be regarded as too great to ensure this being done, and we look to the Automobile Club (we must admit with much confidence) to see that this is effected. How far the Commission will be willing to hear individuals not representing organisations we do not at present know, and its action in this respect will probably be determined after its first sittings. But it is just as well, since prominent automobilists may quite possibly be heard individually, that everyone of prominence connected with the movement,

whether amateurs or manufacturers, should be ready prepared with a convincing case and an outline of the evidence which they will be willing to tender. Even if they are not ultimately heard by the Commission, such facts and evidence as they may collect will probably prove of the greatest value to the Automobile Club. Of one thing everybody may be practically certain. Unless something amounting to a political upheaval takes place in the meantime, future legislation will be based on the committee's report, and, considering the personality of the Commission, we may feel confident that the report will be in accordance with the evidence tendered. It is for the Automobile Club and automobilists throughout the country to do their duty.

The Automobile Club Already Moving.

IN fact the Automobile Club, with commendable promptitude, has already taken action in the matter, and has appointed a sub-committee to go into the whole question, and prepare the automobilist's case for presentation to the Commission. For the sinews of war, too, preparation is being made, private car owners having already subscribed some £300 to what is being termed the Legislative Defence Fund of the Motor Union, and the Daimler Company have also made a munificent donation of £250. The Legislative Defence Fund, it should be pointed out, is to be devoted entirely to placing the case of the automobile movement before the Commission. At the same time the club has instructed the head of its legal department to draw up a case for the assistance of the special sub-committee appointed. The propaganda which the club and the Motor Union are putting forward should have the effect of placing the sub-committee, referred to above, in possession of a splendid amount of material for making up their case. Already some sixty clubs have been written to on the subject, and requested to provide any information which they may consider will be of use, and their replies will no doubt form a useful nucleus of information and suggestions.

Proposals for Future Legislation.

It must be borne in mind that while the Commission will investigate the past working of the existing Motor Car Acts, it will also be employed in elaborating proposals for future ways in which the existing statutes can be improved, and from this point of view the opinions of the local clubs have been specially invited in regard to a few points on which alteration in the existing law is suggested. These are :—

1. *The speed limit*, i.e., the abolition of an arbitrary limit, and the reliance on consideration for the general safety of the public as governing the action of drivers.
2. *Endorsement of licences*, i.e., whether this form of punishment should not be restricted to serious offences only.
3. *The right of appeal* in any motor car conviction, irrespective of the heaviness of the punishment inflicted.
4. *Notice of prosecution*, i.e., that the alleged offender should be notified within seven days of intended prosecution.
5. *Fines and fees* inflicted to be paid into the Imperial exchequer.
6. *The use of the horn* to be entirely at the discretion of the driver, and not obligatory.
7. The present ambiguity about makers' marks to be removed.

The opinions of local clubs and individuals on these points will make a good beginning, but, needless to say, there are hosts of others, and there is the big department of injustice and hardship resulting from the administration of particular sections or phrases of the

existing acts. Anybody who is acquainted with instances of the kind (and there must be huge numbers who are) would undoubtedly do well to place them before the sub-committee of the Automobile Club, so that a selection may be made for presentation to the Commission.

♦ ♦ ♦

Gordon-Bennett Cup Race, 1906.

"THE committee of the Automobile Club of Great Britain and Ireland have decided not to challenge for the above."

By the above resolution the committee of the Automobile Club have signified their determination not to challenge in 1906 for the Gordon-Bennett Race. On the whole we are inclined to think they are wise in coming to this decision. There is every reason to believe that automobile engineers and constructors of practical touring cars have learned from high-speed racing (at any rate with existing types of racing car) practically all that there is to be learned. Should the British club not have taken this decision, but have decided to challenge for the Cup next year, their action would mean that some leading British manufacturers would once again be put to enormous trouble and expense, for they would feel it incumbent upon them to support the honour of their country as strenuously as they have regularly done in the past. At the same time, it is open to question whether either they or the automobile movement would receive value for the money spent. We believe it to be very generally felt by all those best qualified to form an opinion, that the expenditure which would be involved by the participation of the A.C.G.B.I. in another year's Gordon-Bennett, would, at the present stage of the development of the industry, be much better and more wisely devoted by the Club and by the manufacturers to directly developing the tourist car. Apparently, in fact, it is better policy at present to support the Tourist Trophy than the Gordon-Bennett race."

♦ ♦ ♦

The Tourist Trophy a Subject for Provincial Clubs.

ALL who read the accounts which we regularly publish of the proceedings of provincial clubs will presumably have come to the conclusion that the committees of these clubs must often be rather in a fix for some class of event in which their members may take part, and which will interest and appeal to both those concerned as participants and those who look on. They have had a long bout of hill-climbs, and hill-climbs were once amusing and instructive, but, as we have recently pointed out, that happy day has vanished into the "Ewigkeit," and hill-climbs at the present moment are not instructive, are seldom amusing, and do not teach either the participant or spectators anything that they did not know before. Having weighed the hill-climb in the balance, therefore, and found it wanting, the provincial clubs have now betaken themselves to the gymkhana. In fact, that appears to be the only form of competition that still provides amusement, and puts a premium on skill, and so introduces that personal element into prize-winning competitions which gives what provincial clubs want. To provincial club committees, therefore, at their wits' ends to devise new competitions which will prove attractive to their members, events based on the same general lines as the Tourist Trophy may quite conceivably come as a message and revelation from on high. Last week we pointed out that the amateur would find a

good deal of instruction and interest attaching to driving his car against fuel consumption, that doing so would teach him skill in car management, and would enable him to find out a number of things that he did not know before. Competitions arranged on this basis would have all these advantages for organisers of events in the provinces, and would in addition present a very great advantage by enabling them to arrange interesting and amusing competitions, which would supplement the gymkhana and replace the hill-climb by a useful type of competition, in which their members would soon become enthusiastically interested, and which would provide a liberal education in the real principles of motor-car driving and car management.

♦ ♦ ♦

The Smoky Exhaust Nuisance.

ON several occasions in the past we have referred to the considerable, and we fear we must add growing, nuisance of the emission of smoky exhaust by tourist cars both in towns and on country roads. We have pointed out what a serious matter this really is, particularly at the present moment, as—more than anything else except the dust nuisance—it tends to create and foster hostility to the movement. As we said last week, "it is a serious source of annoyance to other road users, and the fertile cause of irritation and hostility to motor cars second only to the dust nuisance, and as it is avoidable it is inexcusable." We need hardly add, therefore, that we are gratified to receive from the Secretary of the Automobile Club a circular which he has dispatched to the automobile press and the automobile world generally drawing attention to the circumstance that the committee of the club has for some time past been taking steps to try and abate the smoke nuisance, being of opinion that there is no excuse for anyone to regularly permit smoke to pour out with the exhaust from his car.

♦ ♦ ♦

A Matter for Carefulness and Adjustment.

As is pointed out by the Club Secretary's circular, the emission of smoky exhaust is (considering the high degree of perfection to which the engines of petrol cars have now been brought), in practically every case, due to want of thought and attention to details. It is as well to make use of the present opportunity for dealing with this very important subject, as there are no doubt a large number of private car owners who, while the last people in the world to wish to poison the atmosphere for other road users in this unpleasant way, may fail to realise how absolutely the trouble can be got rid of by a little careful consideration of first principles.

The whole cause, it is perhaps superfluous to observe, of smoky exhaust is superfluity of lubricating oil in the cylinders. For lubricating oil to discharge its functions properly, it must be practically incombustible, that is to say, its flash point must be so enormously high that it will not burn in the cylinders. If, therefore, there is too much of it present, it comes out as an unburnt or partially burnt, evil-smelling smoke with the exhaust gases. If the lubrication is properly managed, that is to say, if just enough oil is used to lubricate the pistons, and not too much, the exhaust will be smokeless. To get rid of the smoke, therefore, careful consideration or adjustments are necessary, and they are all that is necessary on a well-designed vehicle.

Two Ways of Getting Rid of the Trouble.

PERHAPS the best method of getting over the difficulty is to see that the engine is fitted with one of the existing lubricating systems by which the lubricating oil is measured out in doses of the required amount, and is delivered regularly by a forced feed to the cylinders. It is, of course, necessary in this case to adjust the feed in the first instance until the car runs smokelessly, and after this adjustment has been made the driver can feel certain that there will be no smoke.

In cases where ordinary splash lubrication is relied on, however, the level of the oil in the crank-chamber must be carefully adjusted, and also the rate at which the lubricator feeds fresh oil into it. When this is done properly, smoky exhaust will disappear. Perhaps the chief practical difficulty to be encountered, with any gravity feed device, is that the viscosity or "thickness" of lubricating oil varies considerably with the temperature, and that, therefore, what is a suitable adjustment for a drip feed on a cold day will not be a proper adjustment for a hot day; a certain amount of adjustment is accordingly necessary from time to time, even though the same grade of oil is always employed. It is this which gives to the systems of lubricating, in which the oil is measured out and fed positively, their superiority.



An Evidence of Progress.

It must not be forgotten that the fact that cars can continue to run with smoky exhaust is an evidence of other improvements having been made in modern petrol engines. With the old types of electric ignition, in use some years ago, a superfluity of lubricating oil, such as would produce smoke in the exhaust, would soon have brought matters to a standstill, or seriously impaired the speed attained by effecting the spark on which the ignition of the charges depends. Improvements in ignition have, however, now made ignition plugs vastly less sensitive to the disturbing effect of carbonisation due to partially burnt lubricating oil, and where a car would have either been brought to a standstill some years ago, or have run so badly that the driver could not have failed to notice that something was wrong, the engine now continues to work efficiently, and merely protests against the imperfect regulation of its oil supply by belching forth volumes of blue smoke.

These very improvements, therefore, call for increased vigilance on the part of drivers, who ought all to be anxious not to offend in regard to a matter which is such a fertile source of prejudice and irritation. With a good system of lubrication there is no reason why the exhaust should be rendered objectionable in this way, except possibly when first starting the engine running. The best rule for every car owner to adopt, as pointed out in the Club's circular, is to start up the engine in the garage, and to allow any oil that may have settled in the exhaust passages to escape before taking the car out on the road. If this were always done, the nuisance complained of would practically cease. We are also glad to see that attention has been drawn to the practice—which is only too prevalent—of fitting the final exhaust-pipe so that the gases issue straight out behind the vehicle.



A Sporting Paper's Views.

No one is likely to deny to the *Illustrated Sporting and Dramatic News* a keen appreciation of what constitutes the real elements of sport. Considering the

pronounced views we have expressed, we accordingly feel a certain degree of satisfaction that our sporting contemporary takes identically the same view as ourselves in regard to speed events on short tracks, such as those recently held at Blackpool and Brighton—i.e., that such events are, speaking generally, deficient in interest and in the elements which produce the agreeable excitement associated with contests in which the sporting element is really predominant. In a thoughtful and well considered leading article on the subject in a recent number, which is obviously from the pen of someone intimately acquainted with the automobile question from every point of view, these aspects of speed contests over short tracks are admirably summed up by our contemporary. Even the track contests of racing cars, the *Illustrated Sporting and Dramatic News* looks upon as deficient in interest, since for such short distances the race is determined entirely by inherent speed of car and correctness of adjustment, with the consequence that, after the first few yards, the result can be foreseen with considerable certainty. The skill, endurance, and judgment of the driver are not called out as in lengthy contests of the Gordon-Bennett kind. As regards races of touring cars, our sporting contemporary is in absolute accord with ourselves. The people who buy touring cars do not, as a general rule, it observes, want to tear along our roads at three times the legal speed. They want vehicles to effectively replace, at somewhat higher maximum speed, at a considerably higher average speed, and over greatly extended distances, the ordinary carriage and pair of horses. The *Illustrated Sporting and Dramatic News* sums up the situation concisely by observing that nobody ever thinks of organising races for carriage and cab horses. That is the case in a nutshell.



Motor Boat Trials.

WE desire to offer our heartiest congratulations to the judges for the remarkable celerity with which they have got out their report on a very elaborate and extended series of trials. They must have worked at great speed and high pressure, and it is, therefore, worthy of even still further praise that they should have succeeded in making their report not merely compendious but extremely concise. The judges "have deserved well of the Republic" of automobilists both on land and sea.

We print the report in full on another page, but it may be as well to sum up shortly here its leading features, since motor boat builders in the future would certainly be unwise to neglect their recommendations. The judges are of opinion that many of the boats had their petrol tanks badly arranged, and that the pipes between the tanks and the carburettors were generally inadequately protected, and not sufficiently strong. In this connection, they recommend the pressure-feed system as more suitable to boat work, and finally they point out that, with regard to the ignition apparatus, the electric fittings have not, in general, been well designed for marine work, while the motors themselves might be greatly improved in the matter of noiselessness.

When, however, all these adverse criticisms have been made, the judges' report shows with considerable clearness that the record of the trials has been a fine one. There has been practically no noticeable depreciation, and the competing boats have mostly emerged from the ordeal in as good condition as that in which they entered upon it.

MOTOR YACHT CLUB'S RELIABILITY TRIALS, 1905. RESULTS.

Number.	Entrant.	Engine.		Cyls.	Price.	Performance on First Day.					Stoppages.		Number.
		H.P.	Make.			Course.	Laps.	Miles.	Time.	Speed.	1st Day.	2nd Day.	
CLASS II.—Yachts' Launches (not exceeding 20 feet overall).													
					£				h. m. s. m.p.h.	mins.	mins.		
1	Groves, Guttridge ...	6	Dean and Burden ...	2	150	C	6	66	10 11 7	6'5	— ¹	R ²	1
2	J. I. Thornycroft and Co. (SM)†	6	Thornycroft ...	1	200	C	5	55	9 50 16	6'7	80 ³	3 ⁴	2
3	Ashton and Kilner ...	5	Chard (K) ...	2	119	C	1	11	1 49 21	5'5	R ⁵	Scr.	3
CLASS III.—Yachts' Launches (not exceeding 25 feet overall).													
4	A. G. Fentiman ...	30	Blake ...	4	—*	C	7	77	9 26 32	8'2	27 ⁶	N S	4
5	J. I. Thornycroft and Co. (SM)...	12	Thornycroft ...	2	311	C	5	55	9 21 35	5'9	N S	N S	5
6	P. C. Crossley ...	12	Blake ...	4	275*	C	8	88	9 51 50	8'9	N S	R ⁷	6
7	Mitcham Motor Co. ...	7	Fay and Bowen (X) ...	2	230	O	4	62'5	9 36 43	6'5	N S	N S	7
8	Simpson, Strickland (GM)†	11	Simpson-Strickland (S)	4	385	O	5	73'5	9 21 11	7'9	9 ⁸	N S	8
9	De Dion Bouton, Ltd. ...	6	De Dion ...	1	175	C	5	55	10 22 28	5'3	N S	N S	9
10	J. W. Stocks ...	6	De Dion ...	1	175	C	5	55	9 48 38	5'6	2 ⁹	N S	10
11	Scott, Stirling ...	16	Scott-Stirling ...	4	—	C	9	99	9 56 43	10'0	N S	R ¹⁰	11
12	Vosper and Co. ...	14	Vosper ...	4	340	C	3	33	4 56 52	6'7	R ¹¹	Scr.	12
CLASS IV.—Yachts' Launches (not exceeding 30 feet overall).													
13	Stuart Forster ...	10	Lozier (X) ...	2	350*	O	5	73'5	9 50 3	7'5	N S	N S	13
14	Simpson, Strickland (GM)†	16	Simpson-Strickland (S)	2	561	O	6	84'5	10 0 8	8'4	N S	N S	14
15	J. I. Thornycroft and Co. ...	24	Thornycroft ...	4	500	O	8	106'5	9 52 10	10'8	N S	14 ¹²	15
16	J. M. Gorham ...	50	Daimler ...	4	1,200*	C	...	...	...	...	Scr.	...	16
17	Maudslay Motor Co. (SM)	40	Maudslay ...	6	850	O	8	106'5	9 42 27	11'0	N S	N S	17
18	E. A. Chard ...	14	Chard ...	4	250	C	7	77	9 48 48	9'4	3 ¹³	R ¹⁴	18
19	Parsons Motor Co. ...	14	Parsons (K) ...	2	325	O	6	84'5	9 6 47	9'3	5 ¹⁵	3 ¹⁶	19
20	Viscount Royston (GM)...	24	Napier... ..	4	750*	O	8	106'5	9 45 3	10'9	N S	N S	20
21	Perman and Co. ...	24	Iris ...	4	450	O	6	84'5	9 4 34	9'3	N S	4 ¹⁷	21
22	Perman and Co. ...	24	Delahaye ...	4	365	O	7	95'5	9 42 52	9'8	57 ¹⁸	R ¹⁹	22
23	Fiat Motors ...	40	F.I.A.T. ...	4	800	O	7	95'5	9 33 4	10'0	D ²⁰	—	23
24	C. S. Rolls and Co. ...	30	Mechanique ...	4	675	O	...	...	...	...	Scr.	...	24
CLASS VI.—Unrestricted Vessels of any description exceeding 25 feet overall.													
25	Capt. R. T. Dixon, R.E. ...	20	Dixon-Hutchinson ...	4	550*	O	6	84'5	9 3 25	9'3	7 ²¹	N S	25
26	J. Percy Dean ...	12	Dean and Burden ...	4	350*	C	7	77	9 26 6	8'2	19 ²²	40 ²³	26
27	Lord Howard de Walden ...	80	Napier ...	4	1,500*	C	20	220	10 0 25	22'0	N S	R ²⁴	27
28	E. Manville and J. M. Gorham	28	Daimler ...	4	650	C	10	110	9 17 1	11'9	2 ²⁵	R ²⁶	28
29	A. B. Collis, Ltd.†	12	Collis ...	2	200	C	6	66	10 5 32	10'2	N S	N S	29
30	Wolseley Motor Company	16	Wolseley ...	4	—	O	5	73'5	9 41 7	7'7	20 ²⁷	R ²⁸	30
CLASS VII.—Sea-going Motor Yachts with permanent cabin accommodation.													
31	J. H. S. Phillips ...	16	Vosper ...	4	1,200*	O	...	...	...	...	Scr.	...	31
32	Woodnutt and Co. ...	12	Standard (K) ...	2	575	O	6	84'5	9 56 58	8'5	20 ²⁹	3 ³⁰	32
33	S. F. Edge (SM)†	24	Napier ...	4	1,275	O	5	73'5	10 0 58	7'3	N S	N S	33
34	Kensington Motor Boat Co.	20	Kensington ...	4	750	O	...	...	...	...	Scr.	...	34
35	Perman and Co. (GM)†...	12	Goedkoop (K) ...	1	600	O	5	73'5	9 59 32	7'4	N S	N S	35
36	J. I. Thornycroft and Co. ...	75	Thornycroft (K) ...	4	2,700	O	4	62'5	9 44 36	6'4	219 ³¹	N S	36
37	J. I. Thornycroft and Co. ...	75	Thornycroft (G) ...	4	3,000	O	6	84'5	9 13 13	9'2	N S	221 ³²	37

Explanation.

(GM) Gold medal. (SM) Silver medal. † Special award for best British boat in its class. * Privately owned boat.
‡ Autocar Challenge Cup.

Hulls.—All hulls are carvel-built of wood with the exception of No. 27, which is constructed on the Saunders principle, No. 35, which is carvel-built of steel, and Nos. 36 and 37, which are clench-built of steel.

Engines.—All internal combustion engines work on the four-stroke cycle where not otherwise stated. (X) Two-stroke cycle.

Fuel.—All engines use petrol where not otherwise stated. (K) Kerosene. (G) Producer gas. (S) Steam.

Course.—(C) "Sheltered," Southampton Water only. (°) These boats took the sheltered course on the second day only. (O) Open course out into the Solent round Solent Bank's Buoy.

Performance.—All boats ran for approximately 10 hours on the first day, but the times given above are those which the boats took to complete the stated laps. The difference between this time and the ten hours was made up over an indefinitely shorter course. On the second day the course was altered for safety and no distances are available, but each boat remained on the water for approximately five hours.

Stoppages.—(NS) Non-stop. (R) Retired. (D) Disqualified. (Scr) Scratched. ¹Filling petrol tank. ²Sea too rough to start ³Exhaust valve stem stuck. ⁴Filling petrol tank. ⁵Broken contact spring. ⁶Choked circulating pump and dirt in petrol pipe. ⁷Ignition trouble. ⁸Leaky drain-cock on high-pressure cylinder. ⁹Stopped engine through reversing too quickly. ¹⁰Sea too rough. ¹¹Hot clutch. ¹²Choked petrol pipe. ¹³Inlet valve stuck. ¹⁴Sea too rough. ¹⁵Choked paraffin pipe. ¹⁶Choked carburettor. ¹⁷Filling petrol tank. ¹⁸Replacing inlet valve and testing ignition. ¹⁹Cam-shaft jammed. ²⁰Disqualified for not being in dock overnight. ²¹Changing ignition plug and filling petrol tank. ²²Choked carburettor and filling petrol tank. ²³Choked petrol pipe and sea too rough. ²⁴Ignition trouble and propeller fouled cable while at anchor; towed in. ²⁵Broken pump chain. ²⁶Sea too rough. ²⁷Ignition trouble. ²⁸Ignition trouble. ²⁹Choked paraffin pipe. ³⁰Loose ignition wire. ³¹Choked paraffin pipe. ³²Started too soon on poor quality gas, and after re-starting, the circulating pump broke down. (°) These boats took the sheltered course on second day only.

The 6-h.p. Thornycroft yacht's launch (No. 2, Class 2).

The 12-h.p. Thornycroft launch (No. 5, Class 3).

MOTOR YACHT RELIABILITY TRIALS.

THE AWARDS.

The judges recommend that the following medals be awarded.

The points on which the marks were awarded will be published in detail next week.

Class II.—**Silver Medal.**—No. 2, J. I. Thornycroft and Co.

Class III.—**Gold Medal.**—No. 8, Simpson, Strickland and Co (steam).

Silver Medal.—No. 5, J. I. Thornycroft and Co.

Class IV.—**Gold Medal.**—No. 14, Simpson, Strickland and Co. (steam).

Gold Medal.—(Placed at the disposal of the judges by Lionel de Rothschild, Esq., for award in any class).—No. 20, Viscount Royston's "Revolution."

Silver Medal.—No. 17, Maudslay Motor Company.

Class VI.—No award.

Class VII.—**Gold Medal.**—No. 35, Perman and Co. (paraffin).

Silver Medal.—No. 33, S. F. Edge's "Napier Major."

They further recommend that a **Special Gold Medal** be given to Messrs. J. I. Thornycroft and Co. in recognition of their successful efforts to adapt the suction gas-producer type of motor to marine work.

Special Awards for the best all-British boat in each class are won by:—

Class II.—No. 2, J. I. Thornycroft and Co.

Class III.—No. 8, Simpson, Strickland and Co. (steam).

Class IV.—No. 14, Simpson, Strickland and Co. (steam).

Class VI.—No. 29, A. B. Collis, Limited.

Class VII.—No. 33, S. F. Edge, Napier Major.

The special prize for paraffin motors in Classes I., II., III., and IV. has not been awarded owing to lack of entries. Competitor No. 32, entered by Messrs. Woodnutt and Co., which made most satisfactory running on petroleum only, is not eligible for this prize, as she is in Class VII.

The "**Autocar**" Challenge Cup is awarded to Messrs. Perman and Co. for No. 35, as it is considered by the judges to have made the most meritorious performance irrespective of class.

MOTOR YACHT RELIABILITY TRIALS.—The 16-h.p. Simpson-Strickland steam launch (No. 14, Class 4), and Mr. P. C. Crossley's 12-h.p. boat (No. 6, Class 3).

MOTOR YACHT RELIABILITY TRIALS.—The 16-h.p. Scott Stirling boat (No. 11, Class 3).

THE second annual reliability trial for motor boats, organised for the first time by the A.C.G.B.I. last year, but this year held under the auspices of the Motor Yacht Club, took place on August 2nd and 3rd in Southampton Water and the Solent. The programme contained 37 entries, but the actual number of starters on the first day was 33, this number including boats of all kinds and sizes from a little 18 ft. open dinghy up to a 60 ft. yacht with roomy cabin accommodation. The competitors were divided into three restricted classes and two unrestricted classes, steam-boats being eligible in every class, while another of this year's modifications in the arrangements was the provision of an alternative course which allowed the more seaworthy boats an opportunity of proving their fitness for general use by going out into the Solent.

Ten consecutive hours—the duration of the test on the first day—is a very fair trial in its way for a motor boat, even when weather is fair, but when it is followed on the next day—as it was this year—by another five consecutive hours in a rough sea, and under a perfect deluge of rain, the trial run actually becomes a test of great value to all interested in motor boating, either as a pastime or an industry. It is necessary to qualify the approval of a boat which does a ten hours' run on a fine calm day, such as was the opening day of this year's event, because—as a trial—it is almost solely an engine test. If the engine

is sufficiently powerful, it may drive the boat fast enough to demonstrate the "dryness" of the hull under such conditions, but in no other respect is it a test for the boat as a whole, although as we have said it may be considered to constitute a very fair trial run. Happily—though this is hardly the opinion of the majority of the competitors and honorary observers—the weather changed for the second day, and the rough sea provided the necessary test of reliability which was so desirable in order to establish the seaworthiness of the boats. On the whole, therefore, the weather condition may be considered as being distinctly auspicious, even if a trifle unpleasant.

The desirable features about motor boats, which must be brought into prominence by any successful trial, are as numerous as, but very different from, those which it is the object of a trial to emphasise in motor cars. For instance, a motor-boat engine is normally required to work constantly at full load, whereas the engine in a car only works at full load when going up hills. Not only must the engine on a boat work under such conditions, but it is essential that it should never stop accidentally, because if the engine stops the boat is virtually out of control, and if without anchorage will be at the mercy of wind and tide. Any successful trial of motor boats, therefore, should ensure the efficient testing of these qualities as regards the engine as well as the seaworthiness of the boat, while such other

The 6-h.p. De Dion Bouton launch (No. 9, Class 3).

The 14-h.p. Vosper launch (No. 12, Class 3) which uses paraffin for fuel.

MOTOR YACHT RELIABILITY TRIALS.

MOTOR YACHT RELIABILITY TRIALS.—The 12-h.p. Woodnutt sea-going motor yacht (No. 32, Class 7), and the 12-h.p. Thornycroft launch (No. 5, Class 3). The former boat uses kerosene for fuel.

matters as suitability, comfort, convenience and safety of arrangement must of necessity be decided by the discretion of the judges. The M.Y.C. trials have been well calculated to ensure the reliability of the engines, because the duration of the trials on each day was amply sufficient to enable most imperfections to mature. This year, as we have said, the elements also lent their support, and provided a test for the boats as a whole, besides an additional—and very necessary—test for the ignition system of the engine.

It is difficult to discriminate between the exact nature of the trial which is suitable for boats of each class, and an owner may be supposed to exercise reasonable care in the use of his craft and not take an obviously unsuitable boat out in all weathers. From the point of view of a test for the small open boats, therefore, the state of the sea was unnecessarily rough, although the wetness was most desirable as a means of testing the efficiency of the insulation for the ignition—many of these small boats not going fast enough in calm water to drive spray on board. For the larger boats, on the other hand, the weather conditions were none too severe, and it offered an opportunity of showing which boats were really sea-going and which had merely entered for the “open” course on the off-chance of fair weather.

The merits and demerits of the various craft are dealt with in the judges’ report. The results of the trials, as shown by the actual performances of the competing craft, are summarised in the table which we now publish,

so that it is with regard to the seaworthiness of the boat, and particularly with regard to the convenience and safety of its “internal economy,” that the official report mainly deals. It is both complete and outspoken, and will no doubt form a basis for improvement in future manufacture, and a guide to the daily increasing number of present purchasers.

Last year, there were but 26 entries, this year that number was increased to 37, but in addition to this increase in mere numbers there was more variety in type, and indeed No. 4 graving dock at Southampton probably contained, on the nights of the eventful days, the most interesting collection of small self-propelled craft which has ever been brought together up to the present time. The sea-going motor yachts of Class VII. not unnaturally received their share of attention, for they have many attractions, and will undoubtedly become more and more popular as time goes on. The largest of these boats was “Emil Capitaine,” a 60-ft. yacht, constructed and engined by J. I. Thornycroft, Limited. A suction-gas producer plant is installed in this boat—the same as that which we described in our recent article on “Marine Gas Engines,” with the exception of certain modifications only introduced by Messrs. Thornycroft just before the trials. There is no doubt that this craft—which is an entirely new departure in marine propulsion—excited a great deal of interest, and both Herr Capitaine the inventor, and Messrs. Thornycroft the constructors, are to be congratulated on the venture.

Messrs. Perman and Company’s 24-h.p. Delahaye-engined boat (No. 22, Class 4),

The 40-h.p. Maudslay launch (No. 17, Class 4).

MOTOR YACHT RELIABILITY TRIALS.

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MOTOR YACHT RELIABILITY TRIALS.—The 40-h.p. Flat boat (No. 23, Class 4).

On the first day, a non-stop run was placed to the boat's credit, but on the second day the circulating pump got choked up and spoiled her performance. It requires about 15 minutes for starting up, and on the second day when only ten minutes was allowed by the club, Herr Capitaine in the excitement of the moment insisted on starting to time, with the result that the engine stopped when they had reached the mark boat on account of the poor quality of the gas produced. It was subsequent to this temporary delay, however, that the circulating pump gave trouble, and caused so much loss of time. From all accounts, the gas-boat is an extremely comfortable craft, economical and devoid of any inconvenience, which might possibly accrue from the use of gas in a less well-designed apparatus.

Messrs. Thornycroft also entered another boat in Class VII., this being fitted with a powerful four-cylinder kerosene engine. The engine is constructed to start on kerosene, after heating the vaporisers with a blow-lamp, and a compressed air plant, coupled up to a small auxiliary petrol engine, is provided instead of a mechanical starting gear. The build of the hull has rather the lines of a "destroyer," which gave it quite a warlike appearance in the water. Another kerosene boat in this class was the Kromhout, entered by Messrs. Perman and Co. The Kromhout is a Dutch boat, and is fitted with a large single-cylinder engine constructed by Goedkoop, of Amsterdam. When starting, a small quantity of petrol is employed, although it is possible by means of a special attachment to start the engine on paraffin with the aid of a blow-lamp. The whole boat has been designed for a particular purpose—use on the Dutch canals—and its

lines and construction are strange to English eyes. The low freeboard—necessary to prevent it from being blown by the wind—belies the roomy and comfortable interior obtained from the deep draught. The boat is intended to be entirely within the capabilities of one man, who, since he must always be at the helm, has practically no time to look after the engine, which, in consequence, must be capable of running indefinitely without attention, in support of which claim the results show that it was the only kerosene boat to make non-stop runs on both days.

Only one other boat made a non-stop run in this class, and that was the now famous Napier Major, with the design of which our readers are already familiar. Only this much more need be said of it, that its businesslike but withall graceful lines have seldom shown to better advantage than during the trials. Messrs. Woodnutt and Co. were the only other entrants in this class, their boat being less elaborate than the others already mentioned. The engine, which is of American make, has been adapted by them to use kerosene, a special vapouriser having been fitted for this purpose which enables the engine to be started from cold with the aid of a blow lamp.

In the other classes, fewer boats call for special mention, but the two steamboats entered by Messrs. Simpson Strickland are of special interest, as showing what can be done with steam plant on small boats at the present day. The larger of these two craft, a roomy pinnacle identical with those supplied to the P. and O. liners, is fitted with a fire-tube "Kingdon" boiler of the vertical type, and a small compound engine developing about 16-h.p.

MOTOR YACHT RELIABILITY TRIALS.—Messrs. Gorham and Manville's 28-h.p. 40-ft. Daimler craft.

MOTOR YACHT RELIABILITY TRIALS.—The 18-h.p. 35-ft. Wolseley petrol launch (No. 30, Class 6).

Neither boiler nor engine occupy a large amount of space, but the forward part of the boat is in general given over to their accommodation, and that of the coal bunkers and water tanks. For a large open boat of this type, a steam plant is very suitable on account of its extreme flexibility, enabling the speed of the boat to be more easily regulated to suit the weather. The control of the engine is, of course, simplicity itself, and both engine and boiler are well within the capacity of one man's attention. Under ordinary circumstances, it would take about half an hour to get up steam, but by a little manual labour applied to a fan this time may be reduced by as much as 50 per cent.—a proceeding which is not recommended except in emergency—while, if the boat has been in use the previous evening, the boiler is capable of holding sufficient heat overnight, to make steam-raising a matter of only a few minutes, as it is on the smaller of the two Simpson-Strickland boats, which has a water-tube boiler and quadruple-expansion engines with tandem cylinders. During the trials, both boats suffered from using bad coal, but the only stop was that made by the smaller boat in order to repair a leaky drain cock.

Taking the boats as a whole, most of them appeared to be comfortable enough, although many of the smaller craft obviously had only limited sea-going capacities. It is possible to build a small boat which shall have a very high factor of safety, but it involves decking the boat in fore and aft, which not only limits the accommodation but also affects the accessibility of the machinery—con-

verting the boat as it were into a "two-seater." Such boats as those entered by Mr. Fentiman and Capt. Dixon were of this type, while Lord Howard de Walden's racing Napier is, of course, also well protected. Among the more open type, however, the Thornycroft boat No. 15, the Iris and the Delahaye appeared to be very seaworthy, and the engines were protected by a semi-permanent waterproof hood.

For those who do not require high speed, there were two pretty little De Dion boats—one of them being handled by Mr. Stocks, whose racing fame lent humour to his situation at the helm of one of the slowest craft in the competition—both of which performed excellently. Viscount Royston's boat, Revolution, had a particularly neat appearance, and the Napier engine with which she is fitted secured for the boat the honour of two non-stop runs. Unfortunately, the Fiat boat did not turn up in time to be docked overnight in accordance with the rule, and although she ran very successfully on the first day, the Club had to disqualify her for committing this technical irregularity. The Vosper was another boat which had not materialised at the hour the dock gates were closed on the evening prior to the first day's run, but we understand that she was not disqualified, because the owners had sent a satisfactory explanation to the committee. In the event this was not of much importance, for the boat abandoned the trial during the first day's run. As in last year's event, so in this, Miss Larkins, niece of Lieut. Mansfield Smith-Cumming, who took charge of the Wolseley boat, was the only lady competitor on board

MOTOR YACHT RELIABILITY TRIALS.—In front is the Thornycroft 60-ft. "producer gas" sea-going yacht (No. 37, Class 7), Messrs. Groves, Guttridge and Company's little 18-ft. 6-h.p. Dean and Burden launch (No. 1, Class 2) behind.

MOTOR YACHT RELIABILITY TRIALS.—The 75-h.p. Thornycroft sea-going yacht (No. 36, Class 7). This 50-ft. boat uses kerosene for fuel.

the smaller craft, although other ladies, less actively engaged in the trial, were to be seen on the large sea-going yachts.

Two boats abandoned the trial on the first day, and four others did not start on the next morning. On the second day, owing to the rough weather, the open course was made optional, and, as we have said, after a short time the sheltered course was altered so as to keep all boats under immediate observation. As this new course was marked by the temporary position of Sir George Newnes' yacht, the "Albion," and the warship "Brilliant," the exact distance cannot be measured on the chart. The course, however, was quite short and kept all the boats within easy reach of each other and of the mark-boat. Times for the various circuits were taken in the usual way, but we do not give these, because mere times by themselves are of no importance; we therefore give only the times and distances for the first day, but our table shows the causes of stoppages on both days. On the first day, it must be understood that the water was quite calm, but on the second day both wind and sea were high, and it was then far more important to keep going under such conditions than to make high speed—which indeed would be quite out of the question with an open boat. The boats started from the mark-boat at 8 a.m. each morning, but on the second day the trial was officially stopped after 1 p.m., so that each boat ran on that day approximately 5 hours.

Organising such trials as these is naturally no mean task, and those who are responsible deserve congratulations on their success. Motor boat events this year have had a habit of ending in fiasco, and, under less good management, it would have been well within the bounds of possibility for these to have resulted even in fatality. In this connection, Major Lindsay Lloyd, who together with Lieut. Mansfield Smith-Cumming and Mr. Bernard Redwood represented the Club on board the mark-boat, deserves praise for the promptitude with which he took steps to alter the course on the second day in such a manner that all the boats should be under constant observation and within reach of help. The curtailing of the trial just prior to the change of tide, which would

have made the sea worse, was another step in the right direction, it being impossible to make special arrangements for some boats to continue and others to go home.

One and all had already had a severe trial, and the general cessation of events was undoubtedly the wisest policy to pursue, for any fatality must inevitably have done harm both to the industry and to the club. The organisation at the dock was, thanks to the energies of the hon. dockmaster, Mr. Cooper, and the assistant secretary, equally well carried out; and, indeed, Mr. Morris, the secretary of the M.Y.C., may congratulate himself that he was so ably seconded in his labours.

After going to press last week with our table of entries, a change was made in the official numbers of some of the boats in Class III, the Simpson-Strickland boat being numbered 8 instead of 5, and the boats previously numbered 6, 7 and 8 each taking the next lower number.

We draw attention to this fact because the numbering of the boats is almost the sole means of identification. If these numbers are wrongly indexed, interested observers of the trials are consequently greatly confused, and both manufacturers and buyers suffer accordingly. It may appear a small matter, but it is an important one, and we trust that the club will recollect in future that the Press are the main means of communication between the public, whom it is all important to interest, and the industry which it should be their duty to encourage, and that they will prepare accurate programmes in advance, so that in giving the event the desired publicity the Press may be supplying their readers with useful and reliable information.

JUDGES' REPORT.

That the value of these trials is thoroughly appreciated by owners and manufacturers of motor yachts and boats is shown by the large number of entries received, the wide range and nature of the vessels competing, and the energy and determination displayed by competitors to demonstrate to the utmost the qualities of these vessels.

The 31 vessels which started for the trials on 2nd August comprised a very large number of types, from an 18-ft. yacht's launch to a 60-ft. harbour general service vessel, and from a light river launch to a high-powered and fast racing boat.

The trials were originally intended to extend over twenty hours, ten hours' continuous running being completed on each day. On 2nd August this programme was adhered to. On 3rd August, however, the trial was stopped by the judges at the end of 5 hours, owing to the very heavy weather which was experienced—which although it did not seriously affect the running of the larger vessels, was considered to impose an unnecessarily severe strain on the smaller boats, although many of these—as will be seen by a reference to the table of performances—were well able to hold their own.

This shortening of the course on account of the weather should not be considered as having depreciated the value of these trials, as the adverse conditions which extended over the whole of the five hours' running on the second day enabled most of the competitors to demonstrate to an unexpected degree the seaworthiness and consequent value of their craft, and also to show that internal-combustion motors are not liable to be injuriously affected by the pitching and rolling of a small boat in broken water.

Taken as a whole, the design and equipment of the boats shows a marked advance. Many features of the boats of last year's trials having been improved upon.

The judges, however, note with regret that an important exception to the above was found in the methods of fuel storage and supply in the petrol boats which, except in one or two notable instances, left much to be desired.

The chief defect noted in this respect was the connections between the tank and the carburettor, which in many cases consisted of a small pipe indifferently fitted to the tank, and led unprotected, and in some cases right through the middle of the fore-peak, exposed and liable to damage.

That the defect can be avoided was shown by the well thought out and strongly fitted connections in Napier Major, No. 33, and the protected pipes in the Mitcham Company's launch, No. 7.

It appears to the judges that by the adoption of a pressure fed system of fuel supply many difficulties in the way of a really satisfactory installation are removed, especially in the smaller open boats.

There appears to be scope for considerable improvement in the direction of quiet running of the engines—in several instances a motor whose exhaust was efficiently silenced was yet rendered noisy by clattering valves and tappets or by an inefficiently silenced air intake.

The electrical connections and fittings in some of the smaller boats leave much to be desired. Open switches and loose leads are not suitable for boat work.

In pointing out the above defects, the judges do not intend these criticisms to be condemnatory, but stress has been laid upon them in order to indicate in what directions it appears that improvements can be made.

The condition of the boats and machinery after the trial was generally excellent, few boats showing signs of having suffered any depreciation whatever, and in nearly every case the motors were started without difficulty during the judges' inspection on 4th August, although they had had no attention after their severe work in the previous day's bad weather.

The judges wish to call special attention to three vessels entered in Class VII., which presented features of exceptional interest.

No. 33, Napier Major, is a wholesome type of sea-going cruiser, well designed and built, and with a soundly constructed and well installed engine. She is a type of motor yacht which should become popular.

No. 35, Werf Kromhout, is driven by a motor which appears to the judges to be conveniently suited for barge or fishing boat work.

This motor employs petroleum as fuel, but has to be started on petrol. The objections, however, to the use of petrol in this respect, are reduced to a minimum owing to the ingenious manner in which it is utilized. No petrol tank or pipes are necessary. The petrol container on the engine having been once filled is completely insulated, and the whole of its contents are consumed without further attention, the transference from one fuel to another being automatic.

The Goedkoop Motor is simple in design, strongly constructed, and self-contained, and should be capable of withstanding any amount of rough usage.

No. 37, Emil Capitaine is a harbour launch fitted with a producer, gas plant, and motor. The producer is similar to an ordinary land suction gas-producer plant, with the exception of the cooler, scrubber, and drier, which have had to be specially designed in order to meet the requirements of marine work.

The motor is a 4-cylinder vertical one of a novel type, specially designed with a view to accessibility.

The main feature of this vessel's performances during the trials was her economy of fuel. The consumption of coal during the ten hours' trial on August 2nd being only 467 pounds, costing 4s. 6d.

The system opens a new field, and is recommended to the attention of all users of power boats to whom economy of fuel is of the first importance.

This is the first year in which steam boats have been admitted to these trials. The rapidity with which the Simpson-Strickland launches raised steam proved that in the matter of quickness of getting under way steam vessels can be constructed so as to be not far behind those fitted with internal-combustion motors.

In conclusion, the judges wish to express their thanks to the many gentlemen who assisted in the trials by lending launches, daying-out marks, and by undertaking the arduous duties of observers, which post on the second day was one of considerable discomfort. They wish also to thank Mr. H. J. Swindly, who acted throughout the trials as honorary timekeeper, and in this position afforded most valuable assistance.

MANSFIELD CUMMING, F. LINDSAY LLOYD, } Judges.
F. R. S. BIRCHAM, BERNARD B. REDWOOD, }

MOTOR YACHT RELIABILITY TRIALS.—Lord Howard de Walden's 80-h.p. 40-ft. Napier boat with Saunders hull (No. 27, Class 6).



Dust Prevention.—It is of interest to note, while so much attention is being bestowed on the dust-laying problem, that Mr. C. B. Davis, of Droitwich, maintains that if roads are simply strewn with the salt scale from the salt pans, ground fine for the purpose, they will never be dusty. We presume this is due to the presence of chloride of magnesium, which has a great tendency always to remain moist under any circumstances. If this is the explanation it would be a confirmation of the theory advanced in our columns that chloride of calcium would also prove effective, and, as we are inclined to think, more so.

APROPPOS of police-trap tactics, at the sitting of the Uckfield Bench last week no less than nine unfortunate motorists were haled before it, on all of whom fines were inflicted varying from four to twenty guineas. In another case, heard at Uckfield, Earl Russell, who appeared for the defence, raised the novel point that there was no evidence to show that the watch of the electrical timing apparatus started immediately the policeman pressed the button at the other end of the measured furlong. The Bench upheld the point, and the case was dismissed—a triumph for Earl Russell in one of his first appearances as a practising barrister!

THE DELAUNAY-BELLEVILLE PETROL CARS.—PART II.

THE engine cylinders have a bore and stroke of 105 and 130 mm., while in the 16-h.p. and 40-h.p. models these dimensions are 90 by 130 mm. and 130 by 140 mm. respectively. The engine—which is shown from either

as the suction in the mixing-chamber exceeds a predetermined value. The throttle-valve is inter-connected with a centrifugal governor, and may also be closed by means of the pedal, A⁴ (Fig. 11). For normal running, the "throttle" is under the driver's control by means of one of the hand-levers above the steering-wheel.

The lubrication of the engine is positive and automatic, not merely relying upon the action of the revolving cranks on the oil in the base-chamber. As a matter of fact, the oil—although carried to the lower half of the crank-chamber—is never allowed to reach such a level that the cranks can dip into it. The bottom of the base-chamber slopes downwards towards the flywheel, and the oil, in consequence, collects at that end of the chamber. From this reservoir, it is circulated through all the bearings by means of a small force pump. The pump—shown on a larger scale in Fig. 8—is enclosed in a small detachable casing, C, which forms part of the base-chamber, and consists of a plunger, C¹—which is driven by an eccentric from the main crank-shaft, D—and a cylinder, C², which automatically oscillates about the stationary valve-plate, C³, when the plunger works to and fro in it. During the outward stroke of the plunger, C¹, the cylinder assumes such a position relatively to the valve plate, C³, that the oil can find its way through the port, C⁴, into the space beneath the plunger. During the return, down stroke, the port, C⁴, is closed, and the corresponding port, C⁵, on the other side of the valve-plate, C³, is opened so that the oil

is discharged into the feed-pipes, C⁶. The main feed-pipe is formed in the bottom of the base-chamber casting (see Fig. 7), and the oil finds its way, first to the crank-shaft bearings, and then to the interior of the hollow crank-shaft itself. The connecting-rods are also hollow,

Fig. 4.—Front view of the 24-h.p. Delaunay-Belleville Chassis, showing the arrangement of the steering heads and the curved front axle.

side in Figs. 5 and 6 and in sectional elevation in Fig. 7—is supported direct from the side-members of the main frame, and the cylinders are cast separately with their valves arranged symmetrically on the two sides. Alongside the inlet-valves are the low-tension igniters, which are operated by the tappet-rods, B¹, from the inlet-valve cam-shaft, and are supplied with current from the gear-driven magneto, B. The "live" portions of the igniters form separate plug-fittings, and the switch-contacts, B²—which are prominent in Fig. 6 and are conveniently arranged—are very substantially made. The "timing" of the ignition is accomplished by the driver, who has command of a small hand-lever situated above the steering wheel.

On the same side of the engine is the carburettor, of which the float-feed-chamber, A, is just visible in Fig. 6. One of the most noticeable features of the engine are the curved induction-pipes, which have been so designed that the effective distance between the "throttle," A², and the inlet-valves is the same for each cylinder. The mixing-chamber, between the float-feed-chamber, A, and the throttle-valve, A², is shown sectionally in Fig. 9. The jet, A¹, projects, in a sloping direction, into the main air-passage, and there is an automatic auxiliary air-valve, A³, for the admission of cold air at such times

Fig. 5.—The 24-h.p. Delaunay-Belleville Engine, as seen from the exhaust-valve side.

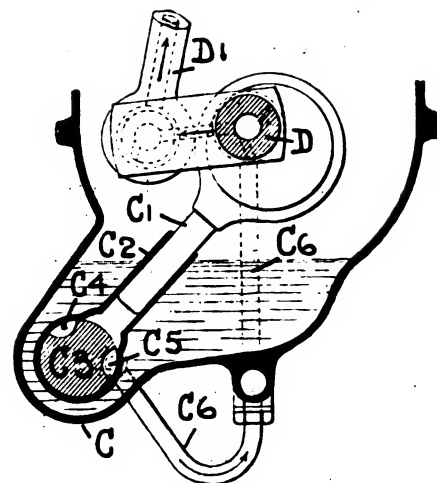


Fig. 8.—Diagram of the Delaunay-Belle-ville Oil-Pump, showing the stationary valve-plate, C^3 , about which the pump-cylinder, C^2 , oscillates.

and the oil—after reaching the “big ends”—passes upwards to the hollow gudgeon-pins, through which it is led to the cylinder walls.

The cooling system is the same as that generally adopted on most cars, the centrifugal pump being gear-driven, and the fan behind the radiator belt-driven. The manner in which the fan is fitted is unusual, however, for it revolves in a casing of its own which projects rearwardly from the radiator. The fan is, therefore, enclosed on the sides, and is thereby rendered more efficient. A spring-controlled jockey-pulley is provided for automatically tightening the belt, it being impossible, with the arrangement adopted, to shift the fan bodily upwards.

(To be concluded.)

Fig. 7.—Sectional elevations of the 24-h.p. Delaunay-Belle-ville Engine, showing the hollow crank-shaft, connecting-rods, and gudgeon-pins, through which the lubricating-oil is circulated by the force-pump, C^1 .

London Traffic and the Commission Report.—We are glad to see that the *Daily Telegraph*, with that perspicuity which has always characterised its treatment of automobile and allied problems, is very dissatisfied with the Traffic Commission's Report. The *Telegraph* objects to the conclusions of the Commissioners for precisely the same reasons as those which have induced the AUTOMOTOR JOURNAL to adopt a critical attitude towards the Report. The *Telegraph's* remarks deserve extensive quotation. The most trenchant passages are as follows:—

“After the summer vacation the Highways Committee of the London County Council will submit plans for new tramways costing £414,160, as at present indicated, and involving a further sum of £209,034 in widening streets . . . Taking this in connection with the first volume of the Traffic Commission Report, just issued, it would appear that unless great caution is exercised London will once more be embarked upon a ruinous policy which will postpone the solution of the traffic problems for almost another century. Much indignation has been shown in some quarters at the delay caused by the recent adverse vote in the House of Lords,¹ but, without any undue disregard for the claims of working men, or for the vast majority of the poorer populations round the richer centres of fashionable society, it is possible to sympathise with a wise refusal to sanction plans which entail far more difficulties than are obvious at first sight. . . .

The Traffic Commission, apparently oblivious of the fact that 27,000 vehicles pass the Mansion House every twelve hours, have actually, in their majority report, suggested tram lines through the City. That one suggestion is sufficient to condemn the spirit in which the report was considered, though nothing, of course, can be said against the industry and good faith with which the numberless details it presents have been collected.

Far more astonishing is the absolute neglect in the Report, save for three passing references, of the future of that motor traffic which will eventually revolutionise the streets of London, by improving their surface, by abolishing dust and the worst forms of dirt, and, above all, by regulating the comparative speed of vehicles in their relation to each other, and to the whole mass in movement. To state present conditions is to condemn them. We can see now a fine mixed assemblage of babies, pedestrians, costers' handcars, donkey wagons, hansoms, four-wheelers, omnibuses, trams, and motor cars, all on the same road, all going at different degrees of speed, and all impeding one another.

A report which neglected the obvious influence of the motor upon all this was hardly likely to consider the possibility of such moving platforms as were proved to be of immense utility at the last Paris Exhibition; nor, of course, could it contemplate the small, swift, constantly-running screw-steamers on a tideless Thames which would result from a dam at Gravesend, and would carry as much traffic as the bateaux-mouches upon the Seine. The last two matters may still fairly be called problematical; but they at least deserved attention. The motor car has long ago proved its utility for the exact form of locomotion needed.

THE TOURIST TROPHY—(continued).

THE article on this subject, in which we not only attempted to familiarise our readers with the fundamental principles of this novel type of competition for touring cars, but also put forward various suggestions for future years, appeared in our issues of July 15th, 22nd and 29th, and in our editorial front paragraphs we invited all those who took sufficient interest in the automobile movement to write expressing their views. A number of useful communications from leading men have already appeared in our columns during the last two weeks, and we now publish a further batch of the numerous and very valuable contributions that have come to hand. We would again express our hearty thanks to all those who are coming forward and are helping to ventilate this important matter in the interests of the whole automobile industry.

To facilitate reference to the various specific points raised in our article, and referred to by our correspondents, we reproduce the summary of the chief suggestions put forward by us, as also the list of the weights, measures and dimensions that are specified by the rules for this year's race.

Suggested Modifications of Rules for Future Years.

- (1) The bodies to be comprised of four independent parts.
- (2) No cars to have engines with less than two cylinders.
- (3) No cars to have more than four forward "speeds."
- (4) Any obvious "freaks" may be refused entry at discretion.
- (5) Any unduly noisy car may be disqualified at discretion.
- (6) The race to extend over two, or three, consecutive days.
- (7) The cars to start, at equal time-intervals, in order of numbers.
- (8) The cars to be stopped, timed, and re-started immediately, at numerous "controls."
- (9) The cars to carry numbers denoting laps completed.
- (10) The cars to be driven by different drivers each day.
- (11) A class to be instituted for two-seated cars, to compete separately, and on other days.

Specified Weights, Measures, and Dimensions in the Existing Tourist Trophy Rules for this Year.

- (A) *Fuel Consumption*.—1 gall. per 25 miles (dry, average road).
- (B) *Weight of Body and Load*.—950 lbs. (including 300 lbs. ballast and 22 stone passengers).
- (C) *Weight of Chassis*.—Between 1,300 lbs. and 1,600 lbs.
- (D) *Wheel-Base*.—Not less than 7 ft. 6 ins.
- (E) *Track*.—Not less than 4 ft.
- (F) *Platform behind Dash*.—Not less than 6 ft. 6 ins. long and 2 ft. 6 ins. wide.
- (G) *Width of Seats* (each pair).—Not less than 3 ft. 4 ins. (between cushions).
- (H) *Height of Seats* (from ground).—Not less than 2 ft. 10 ins.

VIEWS AND OPINIONS OF OUR READERS.—III.

Mr. Basil H. Joy:—

I am very glad to see that you have taken up the question of the Tourist Trophy Race so thoroughly in your columns, and I only hope that the motoring public generally—to say nothing of manufacturers—will appreciate the opportunity that you have thus afforded them, not only of giving this entirely novel type of event their close attention and support, but of putting forward their own views. For my own part, I have always felt that—apart from the difficulty of framing really satisfactory rules for such a contest—the success of the T.T. depends very much upon the extent to which its provisions and their effects are generally understood, so that the enormous amount of work which has been bestowed on the subject by the organising committee who framed the regulations for this year, might meet with its full deserts. It has, I think, been fully realised, even by those who have given themselves heart and soul to the consideration of the subject, who have known what they were striving for, and have thoroughly thrashed out every point, that modifications of the existing regulations may well be found advisable for future years, and that many improvements will doubtless suggest themselves as a result of the experience gained by this year's race.

Much of the success of the race, from a spectacular point of view, will, of course, depend on the completeness of the organisation with a view to giving the public a clear understanding as to exactly what is taking place, the relative positions of the cars, and at any time during the race, &c., &c. The weighing and measuring of some 50 cars, and the checking of the fuel, will be no small matter to get through in reasonable time, and will necessitate very clear and complete instructions being drawn up and placed in the hands of the officials and competitors, but with the experience of the large entries and the successful organisation shown at Brighton, I do not think that this will be found at fault.

In your article you have so thoroughly and fairly covered the whole ground that there is not much left to do beyond expressing an opinion on the merits or otherwise of the suggested modifications as summarised at the conclusion of the article:—

1. Having regard to the fact that, as you point out, the bodies are often supplied by firms other than the makers of the chassis, I think that your suggestion would defeat a maker who supplied chassis alone, while at the same time allowing of a special form of body to give the frame the necessary strength. But it would be unfair if it were concluded from the regulations to the makers who adopt that practice admittedly but insist on supplying only complete cars in consequence.

2. I certainly think that this and many other details, which will be learned by experience, should be included in the regulations. It is very difficult to draw the line between a freak and a genuine car, unless hard and fast lines are laid down in the regulations. Difficulties have already arisen in this connection in the 1902 and 1903 trials held by the club.

3. I do not agree with this, as it would bar out any change-speed

mechanism having a universal range from zero to maximum, if such an ideal were to be produced.

4. I do not agree with this as a regulation. See note on 2.

5. Although I quite agree with this suggestion, I think that the discretion must essentially be that of a duly qualified body of judges, since no reliance should be placed on the impressions of mere spectators.

6. To give real data as to reliability and durability, 250 miles is of course practically useless, and I hardly see that if the race were extended to three days, giving 750 miles, the result would be much better. In view of the greatly increased difficulty of organisation, and the possibility of mistakes in timing, and the additional expense, I therefore think that one day is, on the whole, best.

7. I think it more than probable that the organisers would do this in any case.

8. Since the course will be clear for a "race," there should, I think, be no "controls" at all, particularly as they are apt to introduce possibilities of mistakes being made.

9. This would not be very practicable if there were no controls, or even necessary if the race were completed in one day.

11. I certainly think that this might be a good scheme, after the necessary experience has been gained in this year's race.

In regard to the specified weights, &c., I am rather sorry that the mileage per gallon has not been laid down as, say, 30 miles, in order to attempt to reduce the speed from that anticipated, viz., 25 m.p.h., to 20 m.p.h. In view of the present state of feeling against motor cars, it would at least have looked better if the legal limit had been aimed at.

"F." It appears to me that this means of specifying the length of the chassis, or rather a part of it, which is what it amounts to, puts such cars as the Lanchester, Oldsmobile, Duryea, &c., on a different footing from those having the engines in front, although I do not see that this will give a material advantage to either, and have no doubt but that the committee carefully consider the point.

Referring to the general questions at issue, I should like to say that I am something more than pleased to see that the A.C.G.B.I. is—although not altogether forsaking racing pure and simple—giving such enormous prominence to what must be considered a glorified reliability trial. Motor car racing is not for this country, and although undoubtedly it has up to now done wonders for the development of the car, it is past its prime. Reliability trials on the now well-known lines have also seen their best days. Long distance trials up to 4,000 and 5,000 miles, such as those carried out by the Martini and Siddeley cars, and the 2,000 miles of the Straker 'bus, have not caught on; they are costly in comparison with the advertisement obtained, and are bound to die a natural death. The idea, therefore, of giving makers certain exact limitations with which they have to conform, strikes me as being excellent, and the winner will probably be found in the maker who has been able to compile the most complete data from his experience, and who brings the greatest amount of science to bear on his designs.

It might appear to one who had not gone very deeply into the matter, as if credit ought to be given for unconsumed fuel, or to a fast car which arrives say within a yard of the finishing line long before other competitors, and then runs out of fuel, but it must be remembered that rules are rules, and that the maker who most nearly complies with *all* the conditions is the man who is deserving of the whole of the credit, and not the man who excels in one condition only.

Don't H. for

Messrs. Legros and Knowles, Ltd. :—

You ask us for our opinion on the Tourist Trophy Rules after considering your article on the subject. Taking the "points" of a good car which you mention, there is no doubt that the following can be directly encouraged :—Reliability, Speediness, Flexibility, Hill-Climbing, Efficiency. Durability cannot possibly come into such a contest at all unless it is unduly extended. We think that such qualities as Silence, Ease of Control, Absence of Vibration, &c., which bring in to such a large extent the personal equation of the judges, should, under no circumstances, receive marks which would affect the placing of a car, provided that they are sufficiently in evidence to justify the car being considered up to date. The question of "freaks" is a vexed one, but we think again that it would not do to let the opinion of judges settle what is a freak and what is not. If the other rules be made sufficiently explicit, it would seem that freaks could be avoided automatically, *e.g.*, the maximum number of gears and the minimum number of cylinders could be stated, as you suggest.

Our chief point, however, is that the best way to limit horsepower would be on the bore of the cylinder rather than on the fuel consumption. The stroke is of no consequence, for, after all, the best piston speed at which to run a petrol engine is fairly well known now, so that short stroke and high revolution speed, and long stroke with slow revolution speed tend to equalise one another. Your two objections to this method of limitation are (1) the checking of the dimensions; (2), encouragement of high speed of running. The answer to (1) almost every modern engine worthy of the name has an inspection door in the crank-case big enough to introduce a hand with a pair of inside calipers and thus verify the measurement. In cases where this is not so, the manufacturer would, of course, have to bring his cylinders and crank-case to the Club for measurement, and have the two bolted together with, say, a piece of twine having the club seal impressed.

2. Automatically discourages itself, if, as is usually done, it is granted there is a piston speed which gives best results in a petrol engine. This means that a high speed of revolution is only profitable with a short stroke, and we see no reason why this practice of design should be especially discouraged.

To the fuel limit, however, we see many more distinct objections, for it immediately puts a premium on (a) Multiple gears (b) Constant speed engines (c) Hit and miss governing, and directly discourages flexibility; which, after all, is about as important a virtue in a modern car as any. A flexible engine would naturally be controlled altogether on the throttle—as in any modern touring car—and this is notoriously wasteful of fuel.

We see no objection at all to the method of restrictions on weights, and agree that 950 lbs. for the live and dead load for the body is a fair one. With regard, however, to the chassis weight, we think that the upper limit is much too low, unless it be the intention to restrict the competition to very low horse-power as touring cars go. We think 1,800 or even 1,900 lbs. would be a better upper limit to employ. The present limit tends to cutting weight in the chassis, especially in places (*e.g.*, springs and axles) where the stresses must be more or less indeterminate. And this should be rigidly guarded against, as a bad lump in the road could cause danger of accident under the present ruling, whereas cutting body weight could do far less harm.

Your proposal to lengthen the race to three days is, we think, unsound. For a three days' race is surely no test of durability, and would almost certainly cause a loss of interest in the Competition by imbuing it with the monotony of a reliability trial.

To sum up what we advocate.

1. Maximum bore of cylinder to be the engine limit.
2. A body with live and dead load weight of 950 lbs.
3. Chassis weight of 1,300 lbs. minimum and 1,900 lbs. maximum.
4. A definite ruling as to minimum number of cylinders and maximum number of years.
5. No fuel limit, or if any, not more than 16 miles to the gallon.
6. Clear rules on which a "freak" shall be admitted or excluded.
7. Nothing left to the personal idiosyncrasies of the judges,

i.e., marks are not to be awarded on their opinions, but only on performance.

*Legros & Knowles. W.
J. Knowles*

Mr. W. Letts :—

I was very much interested in the article which appeared in your paper on the Tourist Trophy Race.

As soon as the rules and regulations were issued by the Automobile Club for this event, I took the matter up very seriously with the constructors of the De Dietrich vehicles, and was very soon convinced by them that it was very much better to keep out of it than to enter a car which would comply with the rules and regulations as they now stand. The conclusion arrived at was that such a machine would not be a thoroughly reliable touring car, or one in which the makers would have sufficient confidence to induce them to build duplicates for sale to the general public—a condition which is insisted upon from those entering a car for the Tourist Trophy Race.

I believe, however, that this Tourist Trophy Event could be made quite as important as the Gordon-Bennett Race, even though it might never be as exciting, and I take it that what should be aimed at in a tourist car event is to ensure sufficient strength to withstand the heaviest roads, to prove that the brakes are heavy and strong enough to hold the car under any condition, to make sure that the body is roomy and comfortable enough for touring purposes, and to see that the frame is made long enough to carry a comfortable side entrance body. I certainly think, moreover, that the engine should not have less than two cylinders.

In my opinion, most of those who enter cars, to comply with the regulations this year, must build special vehicles, and I very much doubt if the makers will be honestly able to recommend identical cars to their customers, or to guarantee them to give satisfaction under all conditions. The trouble is that the present rules are practically asking the manufacturers to make freak cars. I do not say that everyone will do this, because I know there are some very good cars being built for the race, but I saw one last week that I should consider anything but a reliable touring car; in fact, the chassis put me very much in mind of a Gordon-Bennett racing car which was a little bit overweight. The frame was all bored out to keep the weight down, and every part was so light that even if the car completes the full distance I shall be very much surprised; at any rate, I should say that after the race it will be completely worn out. I fully realise, of course, that this year's race will be the first event of its kind, and that the experience gained will be of inestimable value to those who draw up the rules for next year's competition. I am sure, moreover, that everyone will be grateful to you for going so thoroughly into the subject before the race actually takes place, for your article will at least enable them to take an intelligent interest in it, and to utilise to good purpose the lessons that it may teach. Everyone naturally desires that the rules should make it impossible for any but a thoroughly reliable touring car to win the race, and that they should also give every competitor an equally fair chance; it should, for instance, be impossible for a car having a big 1-cylinder engine with six speeds, or any such monstrosity, to compete at all.

My chief difficulty in forming an opinion concerning the real merits of such a race as that proposed, is that I do not fully understand the extent to which fuel-consumption affects the horse-power of a car, and consequently its speed. This is, of course, a matter upon which the whole success of this type of event depends, and I therefore wait with very much interest to hear what the manufacturers themselves and the people who are building cars for this event have to say upon the matter.

In the main, I thoroughly follow and agree with the line taken in your article, but there is one suggestion put forward with which I totally disagree, *i.e.*, I think it would be absolutely unfair that there should be different drivers for the cars each day, and I should oppose any such measure very strongly. It must be remembered that these cars will be given over to the men who are going to drive them, who will have tested them, and who will know their car in the same way as a racing man knows his racing car, and to hand the car over to a man who is nothing more or less than a driver is, I think, wrong. It might be made optional, but under no condition should a rule be made stipulating that a car must be driven by a different man each day of the competition.

W. Letts

RACES, RECORDS, AND TRIALS.

ARDENNES CIRCUIT.—Hemery, on his four-cylinder Darracq Car, the winner on Monday last of this year's race.

Ardennes Circuit.—On Friday last at Arlon the preliminary weighing formalities for the voituresses and motor cycles took place, the same operation for the cars and light cars being performed at Bastogne on the following day, Saturday. The voituresses and motor cycles took their turn at racing round the small circuit on Saturday, the motor bicycles being sent off shortly after 7 o'clock in the morning, whilst the main attraction of the meeting—the race for the cars and light cars round the big circuit, starting from Bastogne—was reserved for Monday last. Unfortunately the number of entries, however, of the larger fry were considerably less than in previous years, but the best times that have ever been made were put up this year. On the small circuit the first day's racing was over a course starting from Arlon of 40·24 kiloms. This had to be covered five times, making a total of 201·2 kiloms., the whole distance being run without neutralisation. The points of this triangular circuit were Arlon (start), Corne-du-Bois-des-Rendus and Habay. At the start there were 25 motor bicycles and 3 voituresses, 3 of the motor bicycles being above 50 kilogs. in weight. The day's racing resulted in the motor cycle class in a big triumph for the Griffon make of machine, the first three classed being all of this type, ridden respectively by Bucquet, 2h. 12m. 19s., Lamberjack 2h. 25m. 28s., and Demester 2h. 30m. 38½s. These were followed by (4th) Beniot (Z.L.), 2h. 31m. 36s.; (5) Champoiseau (Peugeot) 2h. 32m. 55½s.; (6) Dejean (Adler) 2h. 47m. 40s.; (7) Fagard (Sarolea) 2h. 47m. 56s.; and (8) Cissac (Peugeot) 3h. 27m. 14s. The second best time was actually accomplished by Thomas on an Alcyon, his time being 2h. 24m. 33s., but owing to his having entered in the class for machines weighing less than 50 kilogs., he was disqualified, as before the start he strengthened his saddle and made extra fixtures to his fuel reservoir, thereby bringing him several grammes over the 50 kilogs. It has been suggested that under the circumstances he should have been placed first in the class for machines

weighing over 50 kilogs. This, however, would have been somewhat rough on Tabuteaux, who in this latter class, riding a Griffon machine, was given the first place with the time of 2h. 46m. 36½s., Yourassoff, on a Peugeot machine, being the only other classed in this category with 3h. 21m. 15s. The Griffon has, therefore, secured the premier position in both categories.

In the voiturette class, Wagner, on a Darracq, obtained first place in 2h. 46m. 32½s., beating Taveneaux on a Gregoire, whose time was 2h. 51m. 51½s. Wagner's victory was all the more creditable as he twice had bad times with tyres, and had therefore to make up considerable leeway. The only other starter in this class was Renoncey or another Gregoire, who retired early in the contest.

The circuit for the cars and light cars on Monday was 118·5 kiloms., the start being from Bastogne. The extreme points of the circuit after leaving Bastogne were Barriere de Champlon, St. Hubert, Recogne, Neuschateau, Habay, and back to Bastogne. This circuit had to be covered five times, making a total distance of 592·5 kiloms. Fourteen starters duly weighed in, the start being given at 6.30 a.m., the winner being ultimately found in Hemery on his Darracq car. Eight actually finished, these being in the order named as follows:—

		Time.			
		Total.	1st 100 kiloms.		
		h. m. s.	h. m. s.		
1.	Hemery (Darracq) ...	5 58 32½	0 57 3		
2.	Tart (Panhard-Levassor) ...	6 13 37½	0 57 11		
3.	Le Blon (Panhard) ...	6 22 56	1 7 45		
4.	Wagner (Darracq) ...	6 24 10½	0 55 18		
5.	Heath (Panhard) ...	6 24 20½	1 1 24		
6.	De Caters (Mercedes) ...	6 40 27	0 59 32		
7.	Duray (De Dietrich) ...	7 18 26	0 58 24		
8.	Montjoie (Darracq light car, 657 kilogs.) ...	7 52 11½	1 11 52		

By the figures for the first 100 kiloms. it will be seen that Wagner, on his Darracq, made the best time of 55m. 18s., giving an average of 108·499 kiloms. per

hour, and beating Crawhez's previous record of 1h. 2m. 25 $\frac{3}{4}$ s. Wagner's time for the first complete circuit (118.50 kiloms.) was 1h. 4m. 22s., and during the first hour he covered 109.2 kiloms.

The "Regularity Cup" for teams goes to the Darracq firm for the best combined performance, in addition to the win by Hemery in the big car class. Jenatzy, who was driving the Mercedes car, after covering three laps, abandoned the race owing to a tyre coming off and the rim being damaged. De Caters also had tyre troubles, and Gabriel (De Dietrich) on the first round smashed a wheel, precipitating the car into a ravine; Fabry (Itala), on the second round was placed *hors de combat* through a seized piston. Heath was unfortunate on the second lap in arriving at Bastogne just as the tyre staff were giving their attention to Wagner, thereby no doubt causing appreciable loss of time. Behr, on the C.G.V., broke his cardan shaft when starting, and Rougier deranged his clutch mechanism, so that altogether there were a large number of mechanical accidents.

Light Delivery Van Trials.—Entries for these trials which are taking place from September 20th to October 24th under the auspices of the A.C.G.B.I., have now been issued, and are as follows:—

CLASS A.—For vehicles designed to carry 5 cwt.

- | | | | |
|--|-----|-----|----------------------|
| 1. Alldays and Onions | ... | ... | Alldays. |
| 2. Simms Manufacturing Co., Ltd. | ... | ... | Simms-Welbeck. |
| 3. London and Parisian Motor Co., Ltd. | ... | ... | London and Parisian. |

CLASS B.—For vehicles exceeding 5 cwt., but not exceeding 10 cwt.

- | | | | |
|---------------------------|-----|-----|-----------------|
| 1. Wolseley Motor Car Co. | ... | ... | Wolseley. |
| 2. Alldays and Onions | ... | ... | Alldays |
| 3. De Dion Bouton, Ltd. | ... | ... | De Dion Bouton. |

CLASS C.—For vehicles exceeding 10 cwt., but not exceeding 1 ton.

- | | | | |
|----------------------------------|-----|-----|--------------------|
| 1. James and Browne, Ltd. | ... | ... | James and Browne. |
| 2. Wolseley Motor Car Co. | ... | ... | Wolseley. |
| 3. Milnes-Daimler, Ltd. | ... | ... | Milnes-Daimler. |
| 4. Dennis Brothers, Ltd. | ... | ... | Dennis. |
| 5. Simms Manufacturing Co., Ltd. | ... | ... | Simms-Welbeck. |
| 6. Thames Ironworks Co. | ... | ... | Thames. |
| 7. Bickford Burners Co. | ... | ... | Light Steam Lorry. |

CLASS D.—For vehicles exceeding 1 ton, but not exceeding 1 $\frac{1}{2}$ tons.

- | | | | |
|------------------------------|-----|-----|-----------------------|
| 1. Motor Car Emporium, Ltd. | ... | ... | |
| 2. Milnes-Daimler | ... | ... | Milnes-Daimler. |
| 3. De Dion Bouton | ... | ... | De Dion Bouton Lorry. |
| 4. Lacre Motor Car Co., Ltd. | ... | ... | Lacre Motor Lorry. |

The particulars of the contest we published in our pages some time ago, and it is hoped that these trials will prove of very great value from an industrial point of view. They will comprise 30 days' service of each vehicle, and daily examination by the judges, the conditions of the trials approximating as far as possible to those of ordinary daily service as required by a tradesman. There will be four centres from which the trials will be worked, viz., Oxford, Kidderminster, Leicester, and Cambridge. The entries close at 12 o'clock noon on Wednesday, August 23rd, by which time it is hoped that a number of manufacturers who have not already entered will have joined in assisting to the success of this very important contest. The judges who are willing to act in connection with these Trials are Messrs. R. E. Phillips, Mervyn O'Gorman, E. H. Cozens-Hardy,

W. Worby Beaumont, G. H. Baillie, and Lyons Samson, whilst Colonel Holden and Major Lindsay Lloyd will act in a dual capacity as judges for the club, and also for the purpose of advising the War Office Committee on Mechanical Transport regarding the diploma offered by the Army Council for the vehicle which is considered either as a whole, or in some details of its engines or other parts, most meritorious from a military point of view, and therefore likely to be of service, even though indirectly, to the Army.

Tourist Trophy.—The original date selected of Thursday, September 14th, for holding this tourist car race in the Isle of Man has now been definitely settled, after consultation with the Manx Highways Board. It was at one time feared there might be difficulty in regard to this date, owing to the trouble which might arise in connection with the harvest in the Island.

The race itself will consist of four complete circuits of the well-known Gordon-Bennett Eliminating Course, making a total distance of 208 miles 4 furlongs. The race will be run without any controls from start to finish. This will possibly render it necessary to erect foot-bridges at Kirkmichael and Ramsey.

The final date for the receipt of entries is Monday next, August 14th, and it is announced that two entrants have withdrawn, viz., Mr. J. Lisle and the Enfield Cycle Company.

Henry Edmund's Hill-Climbing Trophy.—It is proposed to run off this competition at the end of September or the beginning of October, probably on a hill near Worcester, situated in private grounds.

Daily Graphic Trophy.—In all probability this trophy will be contested in the Isle of Man the day after the Tourist Trophy Race.

THE Queen Mother of Italy has decided to offer a cup for international annual competition amongst touring cars. The contest, which will take place in Italy, will be chiefly governed by fuel consumption.

ARDENNES CIRCUIT.—Wagner, the winner in the Voiturette Class, at full speed on his Darracq car.

HERKOMER TROPHY.—Four Daimler Cars of the six vehicles constituting the British team for this trophy which last week we recorded as having crossed the Channel "en route" to Munich to compete in this contest. The photograph was taken immediately before the start of the team from London.

THE HERKOMER TROPHY.—BRITISH TEAM REACHES GERMANY.

(From Our Correspondent.)

Strasburg, Sunday Night.

FIVE days of sweet-running engines, inviting roads, wet weather, scarcely remarkable scenery, some fascinatingly interesting cities and towns, occasionally uncomfortable hotels, invariably good cooking, and above all else the best of good company—such is a summary of the story of the British pilgrimage to Munich to compete for the trophy which has been generously presented by Professor Hubert Von Herkomer, and has succeeded in eliciting no fewer than 101 entries from owners of private touring cars in most countries of the civilized world. The little company is proceeding on five Daimler cars, under the popular chieftainship of Mr. Edward Manville, who will act as a representative of the Automobile Club of Great Britain and Ireland, as well as the driver of his own 35-h.p. car, in the competition which commences on Saturday. The other competitors and members of the party are Mrs. Manville, Mr. Philip Dawson, and Mr. Hearman Ash, who will respectively drive their 35 and 28-h.p. Coventry-built machines, and Mr. Frank Rendle, whose "thirty-five" will be handled by Bush, of Bexhill, Brighton, and Blackpool fame, to name but a few of the series of his triumphs with Daimler touring cars. Next to him, we hold Mrs. Manville to be our trump card, in virtue of her extraordinarily skilful management of her machine, which is as a living thing in her hands. She is the only lady driver who will figure in the competition, the others entered having withdrawn.

We have been doing more sight-seeing than driving during the last five days, in consideration of the fact that the three days' reliability trial to follow the initial stages of the competition will prove sufficiently tiring work without practising non-stop runs all the way to Munich. Hence the greater part of our days have been spent in towns—and, be it whispered, feasting in leisurely fashion on the fat of the land in which we have chanced to be sojourning. What little time has not been spent in either of those agreeable ways has been

given, or the greater portion of it, to sleep, the odd hours remaining being occupied in short but sharp sprints in caravan fashion to the next pre-determined halting-place.

The run to the Kentish coast, the crossing just before the late gale, and the trip from Boulogne to Amiens are already beginning to grow misty in our memories. We have vivid recollections, however, of a sunset scene at Amiens, when, on arriving after a sharp shower, we beheld with something uncommonly like rapt admiration the ancient Gothic church of St. Vulfran's turned to a shining pile of light gold by the bright rays of the sinking sun. Only one other scene of greater beauty—a skyscape at sunset the following evening—has been vouchsafed us so far.

We have spent nights at Reims and Nancy, the hotel and motor-house accommodation of both towns being of the best, as it is here. The prettiest scenery, in passing through France on the roads chosen, was lost to us last night owing to the journey being made long after sundown, the reason being a series of punctures occasioned by one or other of the nails that are fast filling the bag in which we are collecting them. German territory was entered to-day, and as the real business of our trip may be said to commence from this point, as we have been unable to use our cameras owing to rainy weather; however, account of the competition, and the incidents arising in connection with it, must be held over till next week.

Glidden Cup.—This tourist car run appears to have been a success, bearing in mind the rules which were framed for the running of the contest, it being clearly defined that the run was not a race, but an enjoyable long distance tour for tourist cars, although the route selected, including the climb of Mount Washington, was not unnaturally one that was calculated to severely tax at times the powers of the cars. Of the 35 cars which started, 28 are reported as having finished officially, 12 days having been devoted to the tour, 4 on the outward journey, 4 on return journey, and 4 were spent at Mount Washington. The total distance travelled was 861.2 miles. The winner of the Cup is reported by cable to be Percy P. Pierce, who drove a 28-h.p. Pierce-Arrow car, whilst the others who are credited with having come through with clean records are the following, in which it will be noticed the White cars largely predominate:—A. A. Post (White), E. H. Fitch (White), Benjamin Briscoe (Maxwell), Albert L. Pope (Pope-Teledo), Charles E. Walker (Pope-Hartford), R. F. Coburn (Maxwell), S. B. Stevens (Darracq), George H. Tyrrell (White), and W. N. Eppig (White). A good deal of praise is being accorded to the behaviour of the tyres generally, in several cases these being reported to have gone through the entire run without any attention of any description.

French Commercial Vehicle Trials.—Considerable success has attended this event, which started, as we announced last week, on July 27th and ended on August 8th. With such a number of vehicles to look after the French A.C. have had their work cut out to keep the trials well under control, and Mons. Longuemare, who has been in charge of the consumption measurements, has possibly been the hardest of all hard-worked officials. Their arduous tasks, however, should bear most valuable fruit, well calculated to aid the industry from every point of view, both by providing reliable information as a basis for further development, and as a demonstration of the present state of this most important industry.

A characteristic French touch was given to the concluding scene at Paris, on Wednesday, by the massing

of the 48 vehicles which finished out of the 55 started at the Porte Maillot—which point they had been timed to reach simultaneously—and the formation of a procession to parade through l'Avenue de la Grande Armée, Champs Elysées, to the Jardin des Tuileries.

The mass of statistical information which must of necessity evolve from the holding of these trials, is not at present available from official sources; for the present, therefore, we shall refrain from publishing anything in the nature of detailed results until we are in a position to give our readers official data in the concise manner which it is our usual custom to tabulate such information. The unofficial figures would not only be useless but positively harmful to the competitors and misleading to the public.

● ● ● ● MOTOR BOATING.

BRITISH INTERNATIONAL CUP RACE.—"Napier II" at full speed in the Eliminating Trials off Sea View.
The Hon. John Scott Montagu, M.P., and Mr. Lionel de Rothschild, the entrants of the boat, are in charge.

The British International Cup.—No official announcement was made—as we stated at the time—immediately after the Eliminating Race which was held on Monday last week, in the Solent, and it was not until the end of the week that the committee definitely stated that they had selected Napier II, owned by the Hon. J. Scott-Montagu and Mr. Lionel de Rothschild, as the first British representative. Napier II was, it will be remembered, the only boat to actually complete the course, although she started about twenty minutes late. In order to select two other boats from the three other starters, the Club arranged another race, which took place on Wednesday, August 9th, in Southampton Water.

The result of this second trial is that "Napier" and "Competitor" will now, in the ordinary course—together with "Napier II"—represent England in the Arcachon Bay, when the B.I.C. Race takes place on September 11th. The following are the times of the boats for the full distance of 35 miles:—

1. Lord Howard de Walden's Napier, 1h. 47m. 40s. = 19'4 miles per hour.
2. Lieut. Mansfield Cumming's Competitor, 2h. 9m. 32s. = 16'4 miles per hour.
Brooke I. did not finish.

FOLLOWING the motor boat reliability trials which we record this week, came the Solent Regatta in connection with the visit of the French Fleet. On August 7th the events were controlled by the British Motor Boat Club, and the most important event was a scratch race of 40 miles for the "Entente Cordiale" Cup, a trophy presented by Mr. Walker Munro. Unfortunately for the interest in this event, neither "Competitor" (Lieut. Mansfield Smith-Cumming), nor Hutton II. started. Brooke I. again demonstrated the high speed of which she has already shown signs, and completed the course in 1h. 18m. 21'3s., which is equivalent to a speed of 30'6 m.p.h. (26'6 knots). Because Brooke I. did not finish inside the mark, the Cup goes to Napier II. (Hon. J. Scott-Montagu and Mr. Lionel de Rothschild), which took 1h. 29m. 53'3s. (23'2 knots), and the third best time was that of Lord Howard de Walden's Napier in 1h. 32m. 45'3s.

On the next day the Motor Yacht Club took charge of affairs, four events being down on the programme. In the first event Napier II. was unopposed, and in the second, Mr. Perman's Pallas won the handicap, while Mr. Stirling's Elginia, and Capt. R. T. Dixon's Gleione won the third and fourth events respectively.

BRITISH INTERNATIONAL CUP RACE.—"Competitor," Lieut. Mansfield Cumming's 35-ft. boat, travelling round the Eliminating Course.

MR. WILLIAM K. VANDERBILT, JUN., is reported to have offered a valuable cup for an international race of motor boats, to be run over a distance of 100 marine miles annually.

IN the contest for the President of the Republic's Cup offered in connection with the French Marine Week, Dietrich II. proved the winner, having covered the 12 kiloms. in 30m. 58s., Suzette was second in 42m. 22s., Mendelssohn third in 49m. 28s., and Phryne fourth in 53m. 42s.



Antiautomobilemonomania.—A sad instance of a bad attack of this form of incipient hydrophobia occurred to a man of the name of James Drewett, in the town of Nottingham, recently. Dr. Tressider, of Nottingham, was driving his motor car through a street in that town, when Drewett rushed into the road and threw himself in front of the car. The car was fortunately stopped just in time to avoid running over him, but when the doctor attempted to circumnavigate the maniac, the latter jumped up and slashed at the tyres with a knife. Dr. Tressider's chauffeur jumped down to stop this onslaught and was himself savagely attacked. Dr. Tressider immediately went to the chauffeur's assistance, whereupon Drewett produced a poker from under his coat, and attempted to crack Dr. Tressider's skull with it. It is alleged that Drewett was quite sober, and he has accordingly been remanded for the state of his mind to be enquired into. Lord Queensberry, Canon Greenwell, and Sir Ralph Payne Gallwey please note!

Among the Philistines.—While Commissioner Cadman, who is taking a leading part in General Booth's automobile evangelistic tour, was bringing "salvation" to Andover, in a motor car, and at a high rate of speed, he fell into a police trap, which alleged that that speed amounted to exactly 28 miles an hour. Commissioner Cadman will presumably "hear more" about this.

A SOMEWHAT original contest was also inaugurated during the week. Competitors were shut up in an enclosure, and at a given signal each had to make his way to his boat, fill up with petrol, and get away over a course of about 10 kiloms. Upon the return, each, after stopping their engine and making fast, had to again go into their enclosure, the first back gaining the prize. This was open to all classes of boats without distinction, and was secured by Perignon, who steered Dietrich II. Mendelssohn was second and Ketty third.



The Smoke Nuisance.—We are pleased to see that a resolution, strongly condemning the growing habit amongst a number of automobilists of allowing the exhaust gases to leave behind them a trail of filthy, pungent smoke, has been passed by the Expert and Technical Committee of the Automobile Club and endorsed by the General Club Committee. The wording of this resolution, which emphasises the remarks which we made last week and again draw attention to this week in the JOURNAL in regard to this growing practice, is as follows:—

That the Technical Committee expresses the opinion that except temporarily there is no excuse for allowing smoke to pour from the exhaust-pipe, and that a person driving a car should see to it before leaving the motor-house that any superfluous oil has been duly blown off before going on to the public high roads or into the streets of a town.

It also condemns the placing of the exhaust-pipe in such a way that it exhausts directly behind the car, so that when a stoppage occurs in traffic the exhaust is blown directly upon a horse or another motor vehicle immediately behind it.

THE convertible ambulance motor car which the King has presented to the Osborne House Convalescent Home for Officers is an 18-h.p. Siddeley, made by the Wolseley Company. Prior to being sent to its "home," it was taken by command to Buckingham Palace, and the King was driven round the grounds by Mr. J. D. Siddeley. His Majesty expressed his satisfaction with the car as being admirably adapted for the purpose intended.

BRITISH INTERNATIONAL CUP RACE.—"Brooke L" the powerful-engined boat entered by Capt. D. B. Corbet and Mr. Mawdsley Brooke, at speed off Sea View during the Eliminating Trials.



MOTOR CYCLING.

AUTO CYCLE CLUB'S RELIABILITY TRIALS (1905).—ENTRIES.

No.	Machine and Driver.	Cyls.	Bore.	Stroke.	Revs. per Min.	Transmission.	Weight.	Speed.	Seats.	Price.
CLASS I.—Single-seated cycles.										
	<i>h.p.</i>						<i>lbs.</i>	<i>m.p.h.</i>		<i>£ s.</i>
1	3½ Brown (R. M. Brice) ...	1	82	90	1,200	B	165	24	1	37 0
2	2½ Vindec (T. Woodman) ...	1	70	80	2,000	B	140	—	1	35 0
3	3½ Vindec† (W. H. Wells) ...	1	82	85	1,800	B	168	—	1	*44 0
4	3½ Quadrant (T. Silver) ...	1	80	84	—	B	140	—	1	50 0
5	3½ Ortona (J. B. Walford) ...	1	89	83	1,200	B	150	18	1	*52 10
6	2½ Werner (H. E. Blackney) ...	1	70	76	1,800	B	102	—	1	30 0
7	4 Werner (L. M. Young) ...	2	60	76	—	B	112	—	1	47 0
8	3 Bradbury (J. Halt) ...	1	80	80	1,200	B	175	20	1	48 0
9	3½ Rex (A. H. Bindoff) ...	1	83	83	1,800	B	125	25	1	—
10	2½ Ariel (R. T. Harman) ...	1	69	76	1,750	B	100	30	1	47 5
11	5 Ariel (J. Penzer) ...	2	70	95	1,750	B	130	35	1	52 10
12	2½ Phoenix (J. Van Hooydonk) ...	1	76	76	1,200	C 2 G	150	25	1	*57 15
13	2½ Phelon-Moore (W. Milnes) ...	1	76	76	1,250	C 2 G	156	20	1	50 0
14	3½ Phelon-Moore (R. Moore) ...	1	83	76	1,250	C 2 G	168	20	1	52 10
15	3½ Rex (W. H. Hayes) ...	1	83	83	1,800	B	125	25	1	52 10
16	3½ Riley (A. V. Baxter) ...	1	86	89	1,500	B	180	20	1	47 5
17	6 Riley (Allan Riley) ...	2	80	80	1,000	B	130	20	1	60 0
18	2½ Triumph (J. Marshall) ...	1	76	76	2,000	B	—	34	1	*50 2
19	3 Triumph‡ (T. Hulbert) ...	1	78	80	2,000	B	135	35	1	55 0
20	2½ Noble (W. G. Watts) ...	1	73	76	1,800	B	150	19	1	27 10
21	3½ Noble (J. C. C. Brodie) ...	1	88	88	1,200	B	180	19	1	42 0
22	3 Singer (S. E. Pemberton) ...	1	80	80	1,700	B	140	20	1	*52 10
23	4 Barnes ...	1	90	96	1,200	B	180	30	1	50 8
24	3½ J.-A.-P. (A. E. Lowe) ...	1	85	76	1,500	B	195	20	—	45 0
25	2½ Ariel (Bond) ...	—	—	—	—	—	—	—	—	—
CLASS IIA.—Two-seated cycles, not exceeding 85 guineas.										
26	4 Mototri-Contal (Gaston Rivierre) ...	1	86	86	1,800	G C	—	25	2	76 0
27	2½ Mototri-Contal (C. Contal) ...	1	72	80	1,800	G C	—	18	2	70 0
28	6 Leader (E. Clark) ...	2	70	95	—	C	336	—	2	89 5
29	4½ Riley (C. Potter) ...	1	86	89	1,500	C 2 G	448	20	2	89 5
CLASS IIB.—Two-seated cycles, exceeding 85 guineas.										
30	6 Quadrant (H. C. Priest) ...	2	79	80	1,250	C	460	20	2	99 15
31	6 Riley (J. Browning) ...	2	80	80	1,000	C V G	560	18	2	—
32	9 Riley (Deluke) (E. W. Walford) ...	2	86	89	1,000	C V G	672	20	2	138 12
33	10 Lagonda (W. Gunn) ...	2	90	96	—	C 2 G	560	—	2	120 15

* Magneto ignition.

† Traffault suspension.

‡ Spring forks.

B Belt.

C Chain.

C 2 G Chain and two-speed gear.

G C Gear and chain.

C V G Chain and variable gear.

Six Days' Reliability Trial.—Recently we gave the particulars of the route to be covered, together with some other points of interest, in connection with this six days' trial from August 14th to 19th.

The trial, it will be remembered, is for tourist machines only, and the principle underlying the rules is that the test is one of reliability and not speed. There are to be hill trials, and on these speed will be taken into consideration.

The following is a brief summary of these routes :—

	Miles
August 14.—London, Edgware, Oxford (lunch), Cheltenham, Worcester	126½
August 15.—Worcester, Bromyard, Hereford, Gloucester (lunch), Cirencester, Bath, Bristol... ..	132
August 16.—Bristol, Weston-super-Mare, Taunton (lunch), Tiverton, Exeter	118½
August 17.—Exeter, Bridport, Weymouth (lunch), Bournemouth, Southampton	122½
August 18.—Southampton, Brighton (lunch), Eastbourne	120½
August 19.—Eastbourne, Bexhill, Maidenhead (lunch), Redhill, London	147½
Total	767½

The competing machines were due at the Motor House, 18, Down Street, on August 11th, between 10 a.m. and 4 p.m. for sealing and stamping. Three classes of certificates will be issued, and gold medals awarded to machines securing first-class certificates which are of sufficient merit in the opinion of the judges. The award of the certificates will be dependent on the marks earned for reliability (maximum 1,000) as shown by the performance of the machine, hill-climbing capabilities (75), brake power (50), accessibility (20), convenience (80), and condition of machine during and after trials (100). Speed under 15 miles per hour over any section of the route will entail loss of marks for reliability, at the rate of 1 mark for every 2 minutes or fraction thereof that the competitor may be late, with the exception of stoppages for tyre troubles, which are provided for by permitting the driver to make tyre repairs under observation without counting in the running time, beyond being debited 5 marks for the section in which the tyre repair is effected. Any competitor thus losing 120 marks under reliability in any one day will be disqualified from further participation in the trials. Several records will be taken for hill-climbing, for the award of marks, and pedalling will be permitted, but will be recorded, whilst the non-climbing of one special hill of an average character will entail a heavy penalty. Passenger machines fitted with a change-speed-gear and free engine clutch will be stopped on a hill, and must be re-started. Special tests will be made by the judges in connection with the brakes, and marks deducted according to efficiency, at the discretion of the judges. Stops for repairs or adjustments may be made during the day's run, and no marks will be deducted for this, provided that the competitor completes the section in which the stoppage occurs within the time allowed in his time schedule. But all repairs and adjustments must be made by the driver himself without any outside assistance whatever, and replacements must be made only from parts actually carried on the machine or the person of the driver. One hour prior to the official starting time each morning will be allowed for cleaning the machine, and effecting replenishments or adjustments. Any repairs necessary in the evening must be notified beforehand, together with the exact nature of the repairs required, when the observer will attend during such repairs.



THE London General Omnibus Company continues to add to its motor 'bus equipment, and 12 new motor 'buses, which are, we understand, to be run between the Law Courts and Cricklewood, will be started next week. As regards the prospects of the motor 'bus, the Secretary of the Company, who has been interviewed on the subject, is rather guarded in his utterances. According to him, the Company has 100 more outstanding orders, and if all these prove successful, the result will be to largely displace, he declares, the horse-drawn 'bus. Of this we have little doubt, but we learn with some surprise that a good many obstacles have been placed in the way of development by the London police, one set of motor 'buses being condemned for not having the petrol tank in the proper position, and this even in spite of the opinion of Mr. Worby Beaumont that it was all right. As the change required means the re-modelling of the whole chassis, the result is to delay some six cars being put in commission. That the General Omnibus Company expect considerably more development is shown by the fact that they are sending some 70 to 80 horse-'bus drivers to the Battersea Polytechnic to learn motor-car driving, and a considerable number to the works of the Lancashire Steam Motor Company.

One mark for every two minutes so occupied in repairing will be deducted. The machines will start each day at 8.30 a.m., except the last day, when the start is at 7.30 a.m.

Reliability Run to Carlow.—On Saturday last, the Team Race promoted by the Motor Cycle Union of Ireland took place, starting from Inchicore Bridge at 1 o'clock p.m. The run was 100 miles, marks being deducted for every stop on the road, with a stay of 40 minutes at Carlow. The event was confined to teams of three, and the judges for the contest were presented to the Union by the Hon. Frederick D. P. Robinson. At 1 o'clock the following were sent away by Mr. Coleman O'Connell :—

- No. 1 Team.—T. W. Murphy, W. Keating, L. Summers.
- No. 2 Team.—G. Mayne, W. H. Meredith, T. Howison.
- No. 3 Team.—W. Guilfoyle, A. C. Carey, C. Campbell.

W. Keating was early in difficulties, and did not get to Carlow, where all the others arrived in good times and reported non-stop runs, with the exception of Carey, who collided with a dog. The return journey was equally uneventful, Carey being again the victim of ill luck; and at 6.35 Mayne, Meredith, and Howison arrived at Inchicore, finishing a complete team. The time of arrival was as follows :—

			p.m.
G. Mayne ...	3-h.p. Singer ...	Non-stop ...	6.35
W. H. Meredith ...	2-h.p. Triumph ...	Non-stop ...	6.35
T. Howison ...	3-h.p. F.N. ...	Non-stop ...	6.35
T. W. Murphy ...	3-h.p. Singer ...	Non-stop ...	6.50
L. Summers ...	3-h.p. Triumph ...	Non-stop ...	6.50
A. C. Carey ...	2-h.p. F.N. ...	Two stops ...	6.53
W. Guilfoyl ...	2½-h.p. Liberty ...	Non-stop ...	6.59
C. Campbell ...	2-h.p. F.N. ...	Non-stop ...	7.6
W. Keating ...	2½-h.p. Ariel ...	Retired.	

"Motor Cycle" Cup.—The team selected by the Coventry Motor Cycle Club (the present holders) for this cup taking place on Saturday, August 26th, is as follows :—

- Class 1. Motor bicycles under 76 by 76.—V. A. Riley (Riley); F. Hulbert (Triumph); reserve, R. W. Ayton.
- Class 2. Bicycles over 76 by 76.—H. W. Duret (Singer); G. E. Roberts (Triumph); reserve, H. Williamson (Rex).
- Class 3. Passenger motor cycles.—A. Riley (air cooled Riley bicycle and trailer); E. W. Walford (water cooled Riley tricar); reserve, B. Yates (water cooled Humber-Olympia tricar).

At Rheims, on Sunday last, a contest for touring motor bicycles was held. The machines had to cover a distance of 230 kiloms. over a circuit of 76·7 kiloms. Fourteen entrants started, and the chief results were :—1. Driot (Alcyon), 4h. 3m. 45s.; 2. Lallement (F.N.), 4h. 50m.; 3. Gislain (Werner), 4h. 50m. 50s. Eight completed the course, the others abandoning the race.



At the annual meeting of the London Road Car Company, at Cannon Street Hotel, on Tuesday last, the Chairman, Mr. J. H. Moore, was even more guarded in his expressions than Mr. Kingham, the remarks he had made on a similar occasion previously having, he said, been utilised for the promotion of companies to run in competition with his own. Still, what he did let out is sufficiently striking. The takings of the Company during the half-year were a record, showing an increase of 411,343 passengers carried, and an increased weekly average of receipts amounting to 5s. 5d. per car. "In that result the first fruits of the motor 'bus were to be traced." In their new type of conveyance they had carried over a million passengers, and, though the number of motors in service was relatively small, their greater earning power had had some considerable effect in swelling the weekly average receipts. Development, it appears, has been in the case of the London Road Car Company to some extent interfered with by the fact that they have had trouble in obtaining delivery of 'buses ordered. From the Chairman's remarks it is to be concluded that the motor 'bus outlook is practically all that can be desired, but that he is purposely refraining from saying so.

Motor Car Commission.—The full terms of the reference to the Royal Commission on Motor Cars, just appointed at the instance of the President of the Local Government Board, are as follows :—

To inquire and report as to :—

- (1) The working of the Motor Car Acts, 1896 and 1903, and of the regulations under them ;
- (2) The law and practice in relation to motor cars in the principal foreign countries ;
- (3) What amendments, if any, should be made in the Motor Car Acts, and the regulations under them ;
- (4) The injury to the roads alleged to be caused by motor cars ; and
- (5) Whether any and, if so, what additional charges should be imposed in respect of motor cars, and how any money thus raised should be applied ;

with power to issue an ad interim report on the first three heads, if that course should appear desirable.

BRITISH INTERNATIONAL CUP RACE.—The two Napier boats waiting off Sea View for the Eliminating Race. "Napier II (No. 1) was entered by Mr. Lionel de Rothschild and the Hon. John Scott Montagu, M.P., and "Napier" (No. 2) is Lord Howard de Walden's well-known boat.

PRESIDENT LOUBET, as is well known, was up to comparatively recently, if not an active opponent, at any rate a very platonic friend of the automobile movement. It is enlightening, therefore, to find that he has recently purchased a 25-h.p. car, built by Charron Girardot and Voigt.

THE danger of instructing police to adopt illegal methods has been trenchantly illustrated in the neighbourhood of Chicago. Some of the criminal classes have heard about policemen stopping motor cars by firing at their tyres, and recently a motor car party was stopped in this manner and "held up," being ultimately relieved of £400 in notes and cash and a quantity of valuable rings, watches and brooches.

A remarkable feature of the Brighton Motor Meeting was the large quantity of Daimler cars which took part in the races, and which were everywhere in evidence in the neighbourhood. The above is a unique photograph of the special garage for Daimler cars which it was necessary to secure for the occasion, the sixteen bonnets peeping out of their various houses forming a striking picture.

that Brighton is asking for more motorism, recognising, no doubt, the good that the automobile movement is doing to the town. The *Brighton Gazette* suggests that the Town Council should set apart (say for three hours daily) the Madeira Walk entirely for the use of motorists.

Our contemporary is getting very angry with the Sussex police for the elaboration of silly police-traps which are, to a large extent, keeping motorists out of the town who would otherwise go there, and is even more angry, and rightly so, with the Sussex magistrates, to whom our contemporary suggests that they hold the view that "all men are liars—except the Sussex policemen."

An echo of the Delhi-Bombay Trials comes with the above photograph of the Trophy presented by the Maharaja of Mysore, which was won by Mr. B. H. Hewitt on his 8-h.p. De Dion car. The trophy which is of solid silver, and weighs 7½ lbs., bears the following inscription:—

"Delhi-Bombay Trials,
Christmas, 1904,
The Mysore Trophy,
For the car in the best condition
on the conclusion of the Trials.
Won by B. H. Hewitt, Esqr., on his 8-h.p. De Dion car."

WE sympathise to a certain extent with our contemporary, the *Mid-Cumberland and North Westmorland Herald and Penrith, Appleby, Kirkby Stephen, Keswick, and Alston Advertiser*, not only on account of its long name, which is an infliction that few newspapers deserve, but also on account of the very ridiculous and humiliating position into which it has allowed itself to be dragged by unreasoning antiautomobilemonomania. The *Mid-Cumberland and North Westmorland Herald, &c., &c., &c.*, declared in its issue of June 17th that a car numbered AE 1 had rushed past a horse and cart, causing an accident in which the driver of the horse and cart was injured, and that the motorist, regardless of the accident, had proceeded on his way without rendering any assistance. Mr. Thomas Butler, of Charnwood, Bristol, the owner of the car thus numbered, was afterwards charged at the Penrith police court on this count, but the case against him was dismissed without any evidence having been called on his behalf. Mr. Butler is naturally indignant about the libel, but has very magnanimously agreed to accept an apology on the understanding that the newspaper pays his costs and contributes £3 3s. to the Penrith Cottage Hospital, so out of evil to this small extent good cometh. The *Mid-Cumberland Herald &c. &c. &c. Advertiser* may consider it has got off very cheaply. The whole business is a very shocking example of the way in which any lie is believed against a motorist and, without adequate examination, given publicity and circulation. The anti-motorist knows but too well the value of the advice "Give a lie a good start and nothing can catch it."

It would appear that the result of the motor car meeting at Brighton has been

To what absurd length the police will go to trump up cases against motorists was illustrated recently at North Holland, in Lincolnshire, where a summons was heard against a motor bicycle rider for not having provided his "trailer" with a number. The ground of the prosecution was that he was towing an ordinary bicyclist with a rope. Without going into the precise legality of the questions involved, it must be admitted that such a prosecution is an absurdity from the commonsense point of view, and we are, accordingly, glad to learn that the magistrates dismissed the case. The police might, on the same grounds with equal justice, summon every car-driver to whom (probably unknown to himself) a bicyclist is holding on behind. We suppose we shall see this next!

The ingenuity in attracting attention displayed in a large number of shops is ever being exemplified in one direction or another. An extremely clever device of this character is seen in the photograph which we reproduce above, which has been placed at our disposal by the Kodak Company, the well-known manufacturers of photographic apparatus and material. The picture shows an unique design for a window display. The whole of the "motor car" is the result of skillfully assembling a few Kodak cameras and parts of Kodak appliances. Apart from the dolls nothing but articles of the Kodak Company have been introduced.

The Thornycroft motor launch "Banzai," upon which recently the Duke and Duchess of Argyll had a short cruise in the Solent, from Cowes to Ryde and back to Cowes. This speedy boat is of the cruiser racer type, 30 ft. in length by 5 ft. 9 in. beam, whilst she only draws 18 ins. of water. She is fitted with a 20-h.p. Thornycroft marine motor giving a speed of about 17 m.p.h.

MR. RUFUS ISAACS, K.C., M.P., was amongst the list of members elected to the A.C.G.B.I. last week.

A CHANGE of title is proposed by the "Motor Van and Wagon Users' Association," to the "Motor Van, Wagon and Omnibus Association."

DR. EDMUND WARRE, late headmaster of Eton, is to be presented by his "Old Boys" with a 15-h.p. Rolls-Royce car. The Hon. C. S. Rolls, the head of the firm of Messrs. C. S. Rolls and Co., is an old Etonian.

IT appears that the motor 'buses which were running between Tunbridge Wells and neighbourhood have been taken out of service owing to the closing of the South Eastern Bridge to traffic of this kind. They have been sold at a high price to the Brighton Omnibus Company pending the reconstruction of the bridge, so this sale does not in any way suggest that the Tunbridge Wells service was a failure, as there have been attempts in some quarters to represent it.

OUR congratulations to Mr. Eric Chaplin on his marriage to Miss Gwladys Wilson of Warter Priory. Mr. Chaplin, most of our readers know, is a prominent member of the Automobile Club and a member of the Public Policy Committee; while Miss Gwladys Wilson has been for a long time a noted automobilist, being one of the first ladies in this country to drive her own car. The wedding, which took place at St. James' Church, Warter, was a very picturesque function.

THE London County Council are proceeding to make experiments on the Thames Embankment (as they will not now, for some time at any rate, be tearing it up to lay their tramlines) with various forms of tarmac. There is to be 100 feet of granite tarmac, 100 feet of limestone tarmac, and 100 feet of slag tarmac, laid down by Messrs.

Constable, Hart, and Co. This ought certainly to enable a good idea of the wearing qualities of the three different methods of road treatment to be formed.

A JUDGE like Mr. Justice Kennedy does not attach the same sacro-sanct character to police evidence that is the custom of many justices of the peace, and he pointed out in a recent case heard by him at Liverpool Assizes, that if a motor car which had run into an unlighted vehicle had been really exceeding the speed limit as the police maintained, there would not have been even the relics of the cart with which it collided to pick up. In connection with this case Mr. Justice Kennedy also delivered himself of the *obiter dictum* that it was a strange circumstance that whereas a motor car which does not require protection from behind carries a light at the rear, a vehicle which may be readily overtaken is not compelled to do so.

AMONGST the outings arranged for the officers of the French Fleet on their visit to this country are a number of motor-car trips through the New Forest, arranged by the Hampshire Motor Union in co-operation with Admiral Sir Douglas Brownrigg. A large number of the cars which conveyed the Naval visitors were supplied by the Hampshire Club, though some were furnished by other amateurs. The first of these outings took place on the 10th and others arranged were on the 11th, 12th and 13th.

THE Metropolitan Asylums Board are adopting the motor ambulance, and their ambulance committee is now engaged in considering the question of tenders for chassis suitable for ambulance carriages. The form of tender stipulates that the horse-power should be from 12 to 16, and the engine as free from noise and vibration as possible. A tender for a petrol driven chassis of £455 is recommended for acceptance, and Colonel Crompton, mechanical adviser to the board, has recommended the hiring of a complete electric-

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In connection with the Kiel Regatta we recorded that two first prize cups were secured by Lord Howard de Walden's "Napier" motor boat. These we are able now to reproduce above, the one on the left being the Daimler Motor Company's Cup run for on June 29th, which "Napier" secured with a time of 1h. 10m. 38s., at an average speed of 22.1 knots per hour. The Cup on the right was the Kiel-Travemünde Prize on June 30th, presented by Herr Felix Simon. "Napier's" time for the course was 5h. 20m. 18s.

COMMERCIAL POINTS.

DUNLOP motor cycle tyres were again successful at the Brighton race meeting, W. Genn winning the Tourist Handicap from scratch on his Minerva machine, which was shod with Dunlop tyres.

THE Lancashire Steam Motor Company, of Leyland, have received an order for four petrol motor-driven tower wagons for the Belfast City Tramways. These machines will be speeded up to 15 miles per hour, the chassis of which will be identical in every respect to the Company's standard 34-passenger petrol motor omnibus, that is, fitted with the Leyland-Crossley engine and transmission, and 5-inch solid rubber tyres on the front wheels and twin 5-inch solid rubber tyres on the back wheels.

DUNLOP motor tyres had a high time during the Brighton motor races. Twelve first prizes, we learn, were secured by cars shod with these tyres.

The Tyre Trade.—As an example of the tremendous growth in the tyre trade in these days of the omnipresent motor, we hear that Messrs. Grose, manufacturers of the non-skid band tyres, of Northampton, have just acquired warehouses standing upon an area of over 33,000 sq. ft., with buildings three stories in height. They are just opposite their present premises, which will be kept on as usual. In the new buildings one room alone is 150 ft. in length.

At the Royal Lancashire Agricultural Society's Show at Liverpool, Messrs. T. Coulthard and Co., Limited, of Preston, for their Class "K" vehicle were awarded the medal (the only award) for the best 5-ton vehicle.

It was recently announced that the Motor House of Euston Road had purchased a stock of 60-h.p. Mercedes, and we now learn that the greater part of these have been disposed of, amongst the most recent purchasers being His Grace the Duke of Manchester, who has secured one of these high-class machines.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

24164. 8th November, 1904. Improvements relating to Explosion Motors. The Société des Camions Automobiles Moteurs, Dufour, Nyon, Switzerland. The object of this invention is a regulating device for the purpose of cutting off the supply of mixture to the engine whenever the speed exceeds a certain limit. There are four figures. Fig. 1 is a part sectional elevation showing only one cylinder of the motor; *a* is the crank-chamber containing the cranks, to which chamber are bolted the cylinders, the cylinder, *c*, being shown in section; *d* is the piston. The cylinder cover, *f*, forms a valve-casing containing the inlet valve, *g*, and the exhaust valve, *h*. The inlet channels, *g*¹, are connected by means of pipes (not shown) with the branches, *i*¹ and *i*², of a valve-casing, *i*, containing the valve, *j*, the branch, *i*³, of which is connected to the carburettor.

The port, *k*¹, in the cover, *f*, is for the ignition-plug. The valve, *j*, is operated by mechanism in the casing, *a*¹, on the side of the crank-chamber, *a*. The grooved sleeve, *k*, slides on the crank shaft, *b*, and engages the ends of the bell-crank lever weight. The arms, *m*¹, of the forked rocking-lever, *m*, engage in another groove in the governor sleeve, and the lever is pivotally connected to a bracket, *m*². To the end of the forked lever, *m*, is fastened a spring, the tension of which is adjusted by a screw, which resists the action of the governor weights. On the cam, *n*, secured to the shaft, *b*, rests the end of the lever arm, *o*, pivotally connected at *a*² to the casing, *a*¹. To the end of the lever, *o*, is connected a piece, *p*¹, jointed by the link *q*, and the arm, *q*¹, to the arm, *q*², also pivotally connected at *a*². The free end of the lever arm, *q*², falls into the groove in the sleeve,

k, but the free end may reach an eccentric part, *k*², when the latter is shifted by the governor. Above the trip piece, *p*¹, is a slide, *r*¹, one end of which passes through the wall of the casing, *a*¹, and bears against the stem of the valve, *j*. When the lever, *m*, is in its normal position the trip piece, *p*¹, engages a slide, *r*¹, but when the sleeve, *k*, is shifted by the governor the end of the arm, *q*², is operated by the eccentric part, *k*², of the sleeve, so that by the arm, *q*¹, and the rod, *q*, the trip piece, *p*¹, is disengaged from the slide, *r*¹, and the parts operate without actuating the valve, *j*; *s* is the half-speed shaft. July 20th, 1905.

Patent Specifications Published.

Applied for in 1904.

Published July 27th, 1905.

- 17,172. — KITTO. Radiators.
- 19,025. P. J. S. HARLOW. Brakes.
- 19,073. E. PERKINS AND J. B. ROWCLIFFE. Steam generators.
- 19,197. C. CHALLINER. Tyres.
- 22,958. J. E. THOMAS. Means for lifting car bodies.
- 28,122. J. PAXMAN and others. Electric ignition devices.

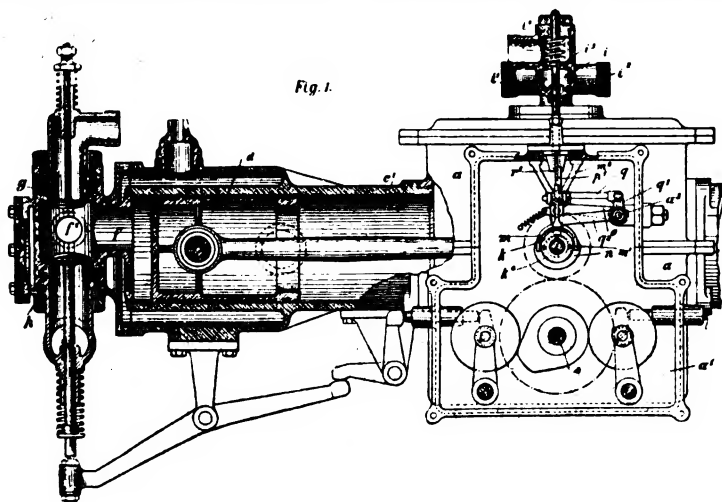
Published August 3rd, 1905.

- 15,269. J. J. KERMODE. Burners for liquid fuel.
- 15,931. A. S. F. ROBINSON. Spring wheels.
- 19,393. E. C. DEFILIPPI. Detachable rim whereby pneumatic tyres can be adjusted fully inflated.
- 19,428. A. R. BELLAMY. Intl. combn. engines.

Applied for in 1905.

Published July 27th, 1905.

- 5,318. C. J. ROUSSEAU AND E. C. FERRIS. Oil engines.
- 5,772. E. M. L. BATISSE AND P. A. DREVET. Starting devices.
- 8,284. H. A. NOALHAT AND G. FOURNIER. Automobile torpedoes.
- 8,315. E. A. SLAUGHTER. Wind and rain shields.
- 8,763. D. STUART AND CO., LTD., AND J. B. T. CROSBIE. Spark arresters for funnels.
- 8,874. E. MACKAY. Indicators.



The Automotor Journal, August 19th, 1905.

THE AUTOMOTOR JOURNAL

A RECORD AND REVIEW OF APPLIED AUTOMATIC LOCOMOTION.

Circulates amongst Makers and Users of Motor Cars, Cycles, etc., in the United Kingdom, the Colonies, and the Continent.

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AUGUST 19TH, 1905.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.		
Aug. 16	...	Mablethorpe Sand Races (Lincolnshire A.C.)
Aug. 26	...	Inter-Team Trial (Motor Cycling Club).
Sept. 2	...	Skegness Races on Sands (Notts A.C.).
Sept. 2	...	Auto Cycle Club, Consumption Trial.
Sept. 9	...	Brown Cup (Motor Cycling Club).
Sept. 14	...	*Tourist Trophy (Isle of Man).
Sept. 15	...	*Daily Graphic Cup (Isle of Man).
Sept. 20	...	Motor Boat Burnham-on-Crouch (B.M.B.C.).
Sept. 18	...	*Van Trials.
Sept. 23	...	Scottish A.C. Hill Climb.
Sept. 30	...	Auto Cycle Club Race Meeting, Crystal Palace.
Oct. 4	...	*Speed Trials.
Oct. 7	...	Scottish A.C. 100 Miles Run.
Oct. 14	...	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17	...	*Quarterly 100 Miles Trials.
Nov. 17-25	...	Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.		
Aug. 19, 20, 21	...	Lake Lucerne Motor Boat Meeting.
Sept. 1	...	Lake Geneva Motor Boat Meeting.
Sept. 2-10	...	Brescia Automobile Meeting.
Sept. ...	...	Tri-Car Competition (L'Auto).
Sept. 10	...	Vincenzo-Florio Cup.
Sept. ...	...	Tourist Car Trial (A. C. de France).
Sept. 3-10	...	Royan Meeting.
Sept. 11	...	British International Cup (Motor Boats Arcachon).
Sept. 16-17	...	Ventoux Hill Climb.
Sept. 19	...	½ Litre Consumption Trials (Motor Cycles).
Sept. 23-30	...	Spa Automobile Club.
Sept.	...	Motor Bicycle Race (French Ardennes).
Oct. ...	...	Vanderbilt Cup.
Oct. 1	...	Chateau Thierry Hill Climb.
Oct. 15	...	Gaillon Hill Climb.

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

The Campaign.

THE campaign inaugurated by the Automobile Club, for providing evidence for the Royal Commission on the Motor Car Acts, to which we referred last week, is one in which every automobilist must necessarily feel the profoundest interest. The whole future of the pastime, and the whole future of the industry on which it depends, are bound up with it, and the same remark applies to the case of those who are interested in automobilism on its business and commercial sides. To conduct the campaign, and to carry out the propaganda necessary for obtaining, examining, and marshalling the necessary evidence, money, and plenty of it, is absolutely indispensable. Automobilists have already commenced to respond to this appeal, but they can scarcely respond to it too widely or too generously. The preparation of the automobilist case will involve the employment of the highest class of skilled ability, and that is the most expensive commodity that money can purchase. When we call to mind that motor car owners have been collectively fined to the amount of £218,000 during the past year owing mainly to the imperfections of the existing Motor Car Acts, and that the evidence placed before the Commission will mainly determine the lines of future legislation, it is almost superfluous to add another word. Every car

owner in the country, therefore, ought, if he possesses the most rudimentary foresight, to contribute to the fund according to his means. We hope that subscriptions will come in freely and handsomely, not only for the reasons advanced above, but also because the effect produced by failure on the part of automobilists to contribute adequately to a propaganda in which the future of the whole movement is involved, cannot fail to produce a disastrous impression on the mind of the public. No one will feel sympathy for, or will support a movement which either fails to recognise, or will not support, its own most pressing and important interests.

The Swan Song of the Echo.

THERE is or was an ancient legend to the effect that the swan—a bird not remarkable, as a rule, for its vocal powers—blossomed forth in the hour of death into rapturous melody. Since last week the *Echo* has ceased from troubling, but just before its demise it produced a monumental effort of Ananiasism by which, at any rate, it deserves to be remembered for a short time to come. The effort, of course, took the form of a report of a motor car outrage or tragedy (whichever expression may be preferred), of which the victim (to excite greater indignation) was represented as an ancient and venerable sandwich man. So circumstantial was the account that the *Birmingham Post* swallowed it whole, and on May 27th last appeared with the following:—

“MAN KILLED BY A MOTOR CAR.—In the thick of the traffic in Oxford Street, London, yesterday afternoon, an aged sandwich-board man was knocked down and killed by a huge motor car. The unfortunate old man, carrying advertising boards back and front, was walking along the roadway close to the pavement in the direction of Queen's Hall when the car, shooting out from behind the press of vehicles, caught the edge of one of his boards. Before the motor could be stopped he was dragged underneath, and the two rear wheels passed over him, causing severe internal injuries, from the effects of which he died on the way to the hospital.”

The secretary of the Motor Union wrote to the *Birmingham Post* pointing out that the London police knew nothing about this terrible accident, and so elicited the information that the original source was the *Echo*. All that could be learned from the *Echo* by correspondence was that the report was supplied to them by “one of their regular men,” and, though again asked for particulars as late as July 6th, the *Echo* maintained a discreet silence. Shortly afterwards, the paper's appearances came to a sudden conclusion, and the “regular man” is probably a drifting denizen of Fleet Street, with plenty of time on his hands. The *Echo's* end is a salient example of the operation of the law of “the survival of the fittest” with its corollary of the “demise of the unfit,” and we hope it may serve as an awful example to journalistic disciples of Ananias to refrain from employing their special gifts for embittering the automobile controversy!

A Comedy of Errors.

ANYONE who is anxious to understand what is going to be the method of conducting the Tourist Trophy Race in the Isle of Man next month, and who attempts to obtain the information he desires from the current number of the Automobile Club Journal is sincerely to be pitied. The rules and regulations governing this highly important event require in any case a certain amount of careful study, and many an automobilist, and certainly many an average journalist, has been in

something of a quandary to understand the bearings of the whole case—recognising which features of the situation, we have devoted a good deal of time and trouble to its elucidation. The last number of the Club Journal, however, muddles the whole business up with a degree of triumphant confusion which would do honour to the best nonsense book ever composed by Lewis Carroll.

The issue of the Club Journal referred to contains information about:—

1. The Tourist Trophy Race.
2. The Tourist Trophy Course in the Isle of Man.
3. What the Races Committee, the ultimate authority in the matter, has decided shall be done.

Will it be believed that the editorial column calmly states that the Journal reproduces elsewhere “the itinerary of the route as officially given, together with the lengths of the various controls,” and at the same time insinuates a criticism of the club authorities to the effect that they have not hitherto got the distance out right, and that the course measured by the Ordnance Survey sheets is 52½ miles, while the committee of the club, which has calculated the distance, that is to say, the authority under which the Club Journal staff act, is stated to have made out the distance as 51 miles, 7 furlongs!

The contour of the course, which is reproduced by the permission of an esteemed contemporary, really refers to the course for the Eliminating Trial for the Gordon-Bennett Race of last year, and marked on it are a number of controls, hill-climbs, and places where speed tests are to be conducted, just as if these features formed elements in this year's Tourist Trophy. If anything could add to the piquancy of the situation it is that the criticism of the club authorities by the Club Journal has probably also been reproduced “by the kind permission of” our contemporary.

On another page of the same issue of the Journal, we find reproduced the decisions of the Races Committee in regard to the Tourist Trophy, and there it expressly states that (1) the race will consist of four complete circuits, making a total of 208 miles 4 furlongs, and (2) *that the race be run without controls.*

Ne Sutor Ultra Crepidam.

THIS sort of thing comes from the shoemaker refusing to stick to his last. It was a good old motto that advised him always to do so. The Club Journal has got quite enough on its hands if it will really content itself with seeing that it furnishes *accurate* and *consistent* information about the proceedings and doings of the club and its allied bodies, the events which it organises and the propaganda with which it is concerned. That it kicks over the traces in the way we have described above, and does not deal effectively with subjects which form its own proper province, is palpably due to its staff attempting to do too much and intervening in subjects with which it is quite improper that it should deal at all. In the same number of the Journal, we have a selection of trade items which appear to be inserted quite without any editing, and a technical article on the subject of electrical ignition, which would probably not have been inserted at all had the staff responsible for its appearance been adequately acquainted with the history and present position of the subject. For it describes as a novelty a system of electrical ignition substantially identical with one introduced a year or two ago by another firm.

Some months ago the club committee agreed to permit the insertion of certain carefully restricted items of trade information; but the "items" to which we refer above can hardly, we think, be fairly regarded as falling into this harmless category. The Club Journal has quite enough to do if it will stick to its own last, and provide the official information which is wanted, without venturing into subjects in which, as this flagrant instance shows, it is likely to find itself egregiously at sea, but when the results of such adventures outside its proper sphere have the result of interfering with the correctness of the official information which it is its proper and undisputed sphere to supply accurately and intelligibly, the situation ceases to be a joke.

* * *

A Matter for Sympathy.

Now life is short, and it is particularly short for all who wish to keep themselves adequately abreast of the automobile movement. Imagine the confusion that might well result in their minds from this magnificent muddle. Many people, as it is, are far from clear about the Tourist Trophy. They should be justified in looking upon the Club Journal as a broadsheet from which they can learn, at any rate, salient official *facts* in regard to the club's own automobile events, and here they find themselves with one breath informed, both that the contest will be run off *without* controls, and there *will be controls* at various specified points, while at the same time they are left to infer *both* that there *will be* speed contests on the flat and hill-climbing competitions, *and* that the event will be run *without any of these refinements*. If any confused automobilists, under the circumstances, jump to the conclusion that they have left the realms of sober fact for those of the theological controversy, they will be very little to blame.

It is very funny, no doubt. A muddle always is for those who know their way through it. But we submit, with all deference, that the Club Journal does not exist for the purpose of muddling up innocent members of the club and confiding journalists, and that if the result of its activity is to do so, it is producing darkness where it ought to be producing light. It is certainly making the automobile movement look ridiculous when the official organ of the leading automobile body in the country produces such an "Alice Through the Looking-Glass" comedy of errors on a question in regard to which it should be the impeccable source of reliable information.

* * *

More Smoke.

MR. DENMAN, the Rhodamantus of Marlborough Street, had, we learn, a batch of summonses (nice word batch! particularly in connection with summonses) before him on Monday last, which were taken out against motor car owners for driving cars which did not, "as far as possible, consume their own smoke." Under the inspiration provided by the unconsumed smoke, Mr. Denman became for once almost facetious, and suggested that if the smoke came out in front under the drivers' noses, instead of behind under the noses of the British public, something would very soon be done to stop it! No doubt it would and it ought to be done at once. We have dealt with this question at length in a former issue, when we pointed out that the nuisance both could and should easily be abated. At the same time, we

question whether summonses taken out on the lines referred to above are legal. If a motor car emits smoke or visible vapour from some temporary or accidental cause, it does not cease to be a "light locomotive," and to emit smoke or visible vapour temporarily or accidentally is not an offence under the Motor Car Acts. A factory chimney (or its owner) can be proceeded against for "not as far as practicable consuming its own smoke," but there is no such charge, as far as we are aware, against a motor car. If an automobile is so constructed as to emit smoke or visible vapour regularly and necessarily, it is a traction engine, and should be proceeded against as such. Mr. Denman adjourned the summonses, probably with a view to acquainting himself with the legal aspects of the question, and this suggests that he is in some doubt on the subject. At the same time, we repeat that we trust that automobilists will not take advantage of the confused state of the law on the subject, but will do all they can to get rid of the trouble, as the emission of smoke irritates the public, and cannot possibly have any other result than to affect the automobile movement prejudicially.

* * *

"Compensation for Disturbance."

THE last half-yearly meeting of the Great Western Railway Company will probably be memorable in the history of the automobile movement when the story of its early development is written in years to come—for it provides, we believe, the first special recognition on the part of a railway company that the motor car is exercising a distinctly competitive effect on passenger traffic. The first-class passenger receipts for the six months dealt with have displayed a falling off of £4,401, and it was distinctly stated by Mr. Baldwin, who filled the place of chairman, that he believed the falling off to be directly due to what he was pleased to call the "present craze for motoring." The word "craze," of course, suggests that the devotion to the new locomotion as a means of travel will not last. On that point we have no forebodings. The conditions of travel by automobile are so healthful and attractive that we simply refuse to believe that people who have become accustomed to them will ever return, *unless compelled*, to the process of being made into parcels, and carried from point to point like packages, which was Ruskin's description of railway travelling. It is a curious thing that the chairman made no allusion to the corresponding profits obtained from the motor 'bus services which the Great Western Railway has been so enterprising in establishing, or what is perhaps more to the point, the profits which the company may expect to derive from this source in the future. If receipts of one kind are diminishing owing to automobilism, automobilism at the same time provides the railway companies with the means for recouping themselves. Let them still further develop motor 'bus services to outlying districts, as so many of them have already been doing, and they will probably find that their total receipts will increase instead of diminishing, while the general health and happiness of the travelling community will be very materially improved. The great railway companies are in a splendid position for organising and financing extended road motor car passenger services. Let us hope the beginnings that several of them have made will lead to extensive development in this direction.

AUGUST 19, 1905.]

THE AUTOMOTOR JOURNAL.

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with decorations, were drawn up with the obvious design of receiving somebody, and as the English visitors stepped forward, they found themselves among the chief honorary officers of the Bavarian Automobile Club. A more courteous reception could not be wished for, yet there seemed a strange air of hurry about the matter of handshaking and a desire to utter an adaptation of the familiar request, "Parse along, pleeze." Sound of feet in the rear caused the Britons to turn their heads, and revealed the fact that the Grand Duchess of Mecklenburg-Schwerin and Prince Ludwig Ferdinand were approaching. Then it dawned upon the visitors that all unwittingly they had nearly been the occasion of marring a royal reception. They had not proceeded very far into the dinner garden before Professor Herkomer espied them, and gave them a characteristically hearty welcome. "Oh, if you only knew how honoured I feel, at such a splendid band of motorists having come over to try for my trophy, and with the cars of the very make that I have always used myself," he exclaimed. "I should so like to see you win it; I should, indeed."

The exhibition of the competing cars at the Beissbarth

It is a pleasure to be able to record the well-earned tribute paid unhesitatingly to the British workmanship and design. When the judges inspected the cars as to beauty and general suitability, they were a shorter time discussing the Coventry-built machines than any other car seen in the Exhibition, and gave maximum marks for all mechanical features and for simplicity and accessibility, while despite the fact that the cars had come by road from London in extremely dirty weather, only four marks were docked from the highest possible number concerning the condition of the coachwork, in connection with which it should be pointed out that more than half the cars had come straight from the carriage builders to the exhibit.

Sheer luxury would appear to be the dominant note in regard to the greater number of cars competing. For instance, the Limousines contained electric light, card tables, adjustable chairs, and all manner of little refinements that are, in reality, contrary to the spirit of motoring, while Monsieur Cuenod's 40-h.p. Martini, fitted with a Cape cart hood, was presumably designed with a view of dispensing with home life and hotels.

HERKOMER TROPHY.—A competitor taking a dangerous curve in the Kesselberg.

autohalle, opened the following morning, when as fine a collection of luxurious touring cars as one could wish to set eyes on was to be seen. The Benz, Opel, Ader, Mercedes, De Dietrich, Peugeot, and Martini, being the machines most numerous represented in the first really important international event designed especially for the private owner. Unhappily, the Napier car entered did not put in an appearance; but the British industry was amply and worthily represented by the five Daimler cars, owned respectively by Mrs. Manville, Mr. Edward Manville, Mr. Philip Dawson, Mr. Frank Rendle, who all have 35-h.p. models, and who are all handling them themselves save the last-named gentleman, who will trust his steering wheel to Mr. Albert Bush; while the fifth car is Mr. Herdman Ash's 28-h.p. model of the same make, which has come to be nicknamed the "hanger-on," because since it took the road for here at Shaftesbury Avenue, more than a week ago, it has never once been "left," running with a reliability that somebody described as positively irritating.

The depression of half-a-dozen buttons in the side panelling release sundry supports which, as they drop into position, compose a couch on which a king need not scorn to recline. A still more novel device on this car, however, was the siren, guaranteed to startle at 12 kilometres against the wind and at 20 kilometres with the breeze in its favour, so that when the moments become a matter of pressing importance to the modest motorist, it will be only necessary to turn on the weird instrument while passing Staines, for instance, and the policemen regulating the traffic at Piccadilly Circus and the Mansion House would immediately hold up the traffic and keep it so until after the passing of the man with the siren.

From "Munching," as the British mechaniciens insist on calling this city, the run to the Kochel See, 65 kiloms. away, is one of the prettiest that has been seen on the tour. This was the scene for the opening of the proceedings on Saturday, when the cars competed in the hill-climb on the Kesselberg towards Urfeld. At least,

The speed trial on the flat has taken place to-day, in the Forstenrieder Park hard by. The enclosure is a sort of flat heath land, with a good road containing some fairly sharp bends, which, however, did not prove obstacles to fast running. There is less occasion to dwell on the results here, as the more noteworthy are set forth elsewhere in this issue. Suffice it to set on record that the weather was as fine to-day as it was wet and occasionally overcast yesterday.

The final and most important stage of the competition will be entered upon to-morrow, when the run to Baden-Baden will be undertaken by a route measuring $222\frac{1}{2}$ miles.

THE Herkomer Trophy Contest is open to tourist cars only. The rules require that each car must have seats for four and be fully equipped as a tourist car. The competition consists of three parts:—(1) Appearance, coachwork, and mechanical parts; (2) Speed trials (two days) (*a*) on the Kesselberg Hill over 7 kiloms, (*b*) on the flat in the Forstenrieder Park, 6 kiloms., near Munich; (3) A tour through South Germany from Munich to Baden-Baden (357·7 kiloms. = 222·26 miles) on the first day, Monday; from Baden to Nürnberg (328·1 kiloms. = 203·87 miles), on the second day, Tuesday; and from Nürnberg back to Munich (236·9 kiloms. = 147·204 miles) on the third day, Wednesday; total, 922·7 kiloms. = 573·35 miles.

In the speed trials the cars are classed by h.p., viz. :—(1) Cars over 60-h.p.; (2) Up to 60-h.p.; (3) Up to 32-h.p.; (4) Up to 16-h.p.

HERKOMER TROPHY.—Professor Herkomer a keen spectator of the contest.

it was called a hill-climb, but in reality it was a study in corner work, the course consisting of a succession of curves having no more severe gradient than 1 in 15, and the mean rise being 1 in 20, a degree scarcely sufficient to slow the powerful touring cars that composed the great majority of the machines entered. Presumably, therefore, it was the cumbrousness of the luxuriousness of the coach work, added to the greasiness of the road surface after a night of drenching rain, that was the factor which contributed to the disappointingly slow speeds. There was also another reason for not taking any risks and overstraining mechanism of the cars, namely, that the marking in connection with the hill-climb was of a purely negative sort, only half a mark being deducted for every whole minute occupied in achieving the climb, which had been reduced in length to a fraction under four miles by leaving out the downhill course on the fringe of the Kochelsee.

There was absolutely nothing in the way of a smart start until more than half the cars had been sent on their way, and Mrs. Manville's turn came. She got away with characteristic promptness, and cheers of the onlookers, who had been all agog with curiosity from the opening of proceedings to see how the only lady driver would handle her machine. As the 35-h.p. Daimler started away gathering speed as curve after curve was approached, it was very noticeable how perfect was her judgment in accommodating the speed of the car exactly to achieve the limit without allowing side-slipping to occur. Moreover, the well-known amateur showed her experience and judgment in the points at which she changed speed, and the address with which she did it. Until the Daimler cars came along there had been practically nothing in the nature of speedy driving, but the example set seemed to improve from that point onwards, and the performances of the representatives of other cars became inspired.

HERKOMER TROPHY.—Climbing the Kesselberg.

Part of the Kesselberg Road.

A viaduct half-way up the Kesselberg road.

HERKOMER TROPHY AND BLEICHRODER RACE.

Marks are awarded as follows:—In the Förstenrieder Park each minute counts a mark. Seconds and fractions of seconds count the sixtieth part of a mark. The awards are the same for the Kesselberg climb, only here the run counts twice. The total performance of the speed trials will be given by the total of the marks.

Example: Run in the park in 8m. 10s. = $8\frac{10}{60}$ marks. Kesselberg run in 14m. 12s. = $14\frac{12}{60}$ marks. Total:

$$8\frac{10}{60} + (14\frac{12}{60} \times 2) = 36\frac{34}{60} \text{ marks.}$$

Each car during the tourist run has to carry a "controller." Adjustments and repairs may be carried out, and the run is not a speed test, but one of general reliability, a minimum and a maximum time, however, being fixed for each day's journey. Competitors may stop *en route* voluntarily, but unavoidable stops, repairs, part changing, &c., are noted and count against the reliability of the car by means of a series of added marks, the winner being the one with the smallest number of marks.

These marks are as follows:—A total of 36 for the three days is debited to each car, and *additions* are made for (a) repairs and adjustments 1 mark per minute; (b) changing parts for the first time 10 marks daily, the second time 15 marks, the third time 20 marks, in addition to repair time marks; (c) water replenishment on road first time 10 marks daily, second time 15, third time 20, and marks for time occupied; (d) tyre repairs, 3 marks changing tube, 6 marks for outer cover, besides the marks for time.

In the appearance competition a maximum of 36 marks is awarded, and any imperfection in the judges' eyes entailing deductions, the highest number of marks denoting the winners. These marks are apportioned as follows:—Upholstery, &c., 14; luggage, &c., space, 10; accessibility and simplicity, 12. These appearance marks are added to the speed-trial marks and deducted from the three days' tour marks, thereby leaving the best car with the least number of marks.

IN respect to the judging in the appearance, accessibility and mechanical excellence competition, the Daimler came out with high honours—these cars being awarded no less than 32 points out of the possible 36.

At the Kesselberg Hill Climb, on Saturday, the weather was wet and the roads were very greasy, and, therefore a change in the actual distance was deemed advisable in order to guard against the possibility of accidents. The best times were as follows:—

Class 1.—(1) W. Poege's 60-h.p. Mercedes 6m. 37s.; (2) Clarence G. Dinsmore's 70-h.p. Mercedes (Driver Werner), 7m. 29s.; (3) Tischbein, 60-h p. Mercedes, 7m. 39s.

Class 2.—(1) E. Langen, 50-h.p. Hermes, 7m. 53½s.; (2) E. Ladenburg's 40-h.p. Mercedes (himself driving), 7m. 59½s.; (3) H. Weingard's 40-h.p. Mercedes, 8m. 11½s.; (4) Edward Manville's 35-h.p. Daimler,

HERKOMER TROPHY AND BLEICHRODER RACE.—The Kochelsee and the Herzogstand (1,757 metres in height).

HERKOMER TROPHY AND BLEICHRODER RACE.—The breezy coloured pictorial heading to the advertisement poster issued by the organisers of this event.

8m. $11\frac{3}{8}$ s.; (5) F. Rendle's 35-h.p. Daimler, 8m. $15\frac{3}{8}$ s.; (6) F. Veith's 40-h.p. Benz, 8m. 24s.; (7) Mrs. Maud Manville's 35-h.p. Daimler, 8m. $30\frac{1}{8}$ s.

Class 3.—(1) M. Martini's 20-h.p. Martini, 8m. $52\frac{3}{8}$ s.; (2) 24-h.p. Adler, 8m. 58s.; (3) 24-h.p. Adler, 9m. 3s.

Class 4.—(1) Branda's 15-h.p. Opel Darracq, 9m. 46s.; (2) 12-h.p. Metallurgique, 11m. 15s.; (3) 12-h.p. Beckmann, 12m. $16\frac{1}{2}$ s. Herdman Ash with his 28-36-h.p. Daimler tied with F. Kosel's 28-40-h.p. Benz with 9m. 7s. Philip Dawson had ignition troubles with his Daimler, although when travelling his speed was grand. Mrs. Manville, as the only lady driver, has received throughout an enviable ovation.

At the 6 kilom. speed tests in the flat in the Förstentrieder Park on Sunday, the best time of the day was made by Mrs. Manville, viz., 4m. $9\frac{1}{8}$ s.; the British Daimler cars securing 1st, 2nd, 4th, and 5th places in the following order. Edward Manville, Mrs. Manville, Frank Rendle, and Philip Dawson respectively. The chief times accomplished were:—

Cat. 1.—W. Poege (60-h.p. Mercedes), 4m. $12\frac{3}{8}$ s.

Cat. 2.—Mrs. Manville (35-h.p. Daimler), 4m. $9\frac{1}{8}$ s.

Cat. 3.—M. Martini (20-h.p. Martini), 4m. $29\frac{1}{8}$ s.

Cat. 4.—C. Bub (12-h.p. Metallurgique), 5m. $20\frac{1}{8}$ s.

In the Motor Cycle Class for the speed events, Frau Gertrude Eisemann, on a $3\frac{1}{2}$ -h.p. machine, was winner in Class I., and Retienne in Class II. (over $3\frac{1}{2}$ -h.p.).

For the tourist run, on the first day, 90 per cent. of the 105 entered cars started at minute intervals, commencing at 4.30 a.m., and 82 of these had arrived at Baden-Baden by 8.10 p.m., Mr. Dinsmore's Mercedes being the first to reach that city. The weather was fine, but the roads were unprecedentedly dusty, causing an accident at the turn before Ulm, whereby a German professor, who was the official observer on Geheimrath Hoffa's car, which turned over, broke an arm.

In the British team Mr. Manville and Mr. Philip Dawson made non-stop runs, but Mrs. Manville's car, which made the fastest time in Sunday's speed trial, had the ill-luck to sustain two punctures, consecutively, near Ulm. A similar trouble prevented Herr Adalbert Schneemen on his 35-h.p. Scheibler car and Mr. Herdman Ash securing non-stop runs for the day.

For the run from Baden-Baden to Nürnberg on Tuesday 77 machines started, of which 74 had arrived in good time at their destination. This journey proved to be a very arduous test, the road traversing mainly a very hilly district, the highest point touched being Dobel, brakes on the descent to Calmbach having a pretty severe trial for efficiency. An unfortunate accident occurred through the excessive dust. One of the

Allgemeine Automobil Zeitung (Berlin München).

HERKOMER TROPHY AND BLEICHRODER RACE.—The tablet seen en route, erected in commemoration of the construction of the Kesselberg Strasse. The size of this monument can be gauged by comparison with the men standing alongside.

competitors in rounding a corner near Herrenalb, about 5 miles from Baden, ran down two children, killing both. Drastic measures were at once announced by the officials forbidding any car attempting to pass any other car travelling at 30 kiloms. per hour. The British team again displayed fine running, non-stop runs being achieved on the Daimlers by Messrs. Philip Dawson, Frank Rendle, and Edward Manville. Mrs. Maud Manville and Mr. Herdman Ash, however, had tyre troubles to contend with.

The final stage from Nürnberg back to Munich was accomplished very successfully on Wednesday, the English owners maintaining their good average up to the finish.

Official figures, which have to be compiled from the observers' notes, are to be issued at the earliest possible moment, but are not available in time for this week's issue of the JOURNAL.

THE Bleichröder Race for cash prizes, 1st £400 and 2nd £100, is for racing cars up to 1,000 kilogs. only, there being two events, viz., over 7 kiloms. on Kesselberg Hill and over 6 kiloms. on the flat, standing start, in the Fürstenreider Park. Under the rules the best average times of the two decides the winner. Cars are divided into heats, viz., 1, cars up to 1,000 kilogs; 2, up to 650 kilogs.; and 3, up to 400 kilogs. Eleven entries were received, and the results were as follows:—

	Time on		Total.
	Hill, 7 kiloms.	Flat, 6 kiloms.	
	m. s.	m. s.	m. s.
1 Hieronymus, 90-h.p. Mercedes (1904) ...	5 34½	3 15½	8 50
2 Werner, 120-h.p. Mercedes (1905) ...	5 56½	3 11½	9 8
3 Wagner, 85-h.p. Opel Darracq ...	5 55½	3 13½	9 8½
4 Braun, 120-h.p. Mercedes (1905) ...	6 1½	3 15½	9 17
5 Hanriot, 120-h.p. Bayard (1905) ...	6 13½	3 17½	9 31½
5 Bugatti, 60-h.p. Mathis-Bugatti ...	6 42½	4 13½	10 55½

HERKOMER TROPHY AND BLEICHRODER RACE.—Urfeld on the Walchensee, 200 metres above the Kochelsee, which latter place is 65 kiloms. from Munich. The Kochelsee was the scene for the opening of the proceedings on Saturday, when the cars competed in the hill-climb on the Kesselberg towards Urfeld, and an excellent view of it is given in our Frontispiece.



THE very sad case of the little girl who was recently killed by a motor car near Nottingham will call forth sympathy for the parents from everyone who reads about it, and particularly from all automobilists. It was an accident pure and simple. The driver, whose own local police gave him a testimonial as a specially careful man, was exculpated from all blame, and he at once stopped and conveyed the injured little girl to the nearest doctor. At the same time, the coroner's inquest elicited evidence from the Deputy Chief Constable to the effect that it was the first fatal accident that had occurred in Nottinghamshire and that the police had next to no trouble with motorists.

MME. Senger Battaue the well-known Munich concert-singer, was recently motoring through a forest when an ungallant and presumably unmusical wild-boar emerged from the piney-fastnesses surrounding the road, and charged full tilt at the *diva* and her car. Nemesis in the shape of sudden death overwhelmed the boar, but the car overwhelmed a telegraph pole, and threw out the lady. She is now being sued by the *Staatsförstundwälderverwaltung* for the cost of the boar, and by the *Staatspostundtelegraphenverwaltung* for cost of the telegraph pole. She is counterclaiming for damages for the-to-her-car-and-person-boar-occasioned-damages, and everyone wants to know how the litigation will end!

LONDON to Paris by motor car looks like being a regular excursion, judging by some tests which have recently been made. Starting with a 14-h.p. Mors car, fitted with Continental tyres, from Piccadilly, the journey was accomplished in fourteen hours. Leaving London at 7.30 a.m., Folkestone was reached at 10.30 a.m. The boat arrived at Boulogne with the car on board at 3.30 p.m., and the car was in Paris, 158 miles from Boulogne, at 9.30 p.m. Upon the return journey one hour upon this time was saved. Leaving Paris at 6 a.m., London was reached by 7 p.m. It will be seen that a very large amount of the time is lost in crossing the Channel, and no doubt, with a regular handling of cars the journey could be accomplished in considerably less time. We, however, hardly see the object, both from the view of expense and waste of time, in shipping the car backwards and forwards over the Channel. We would suggest that if a novel service of this sort is likely to appeal to a number of travellers, that two cars of similar make might with advantage be employed, one on either side of the Channel, to run from London to Folkestone this side, and from Boulogne to Paris on the French side. By this means regular bookings could take place, and travellers carried both ways without necessitating the outward and return journey being made on consecutive days by the same parties.

THE DELAUNAY-BELLEVILLE PETROL CARS.—PART III.

THE clutch is of the leather-faced cone type, and is, as usual, combined with the flywheel. The inner member, E^1 , is mounted on an extension of the crank-shaft, D , so that it is always in alignment with its fellow-member.

the rod, G^1 , a spring being provided in order to automatically disengage the pawl as soon as the pedal is released. A very powerful shoe-brake, F^1 , is fitted to the right of the gear-box, and the brake-shoes are hollow, so that cooling water may be circulated through them from a small tank fixed to the side of the frame. The hub-brakes, which are operated by hand, are of the internal expanding type. Both hand and foot-brakes are interconnected with the clutch, but may be easily rendered independent if so desired.

On the 16-h.p. chassis, which, as has been mentioned, is also made in the live-axle type, the propeller-shaft is enclosed in a stationary tube which is bolted to the casing surrounding the differential gear, and in this way the "torque" tending to twist the axle casing is counteracted. Behind the gear-box is a universal joint, enclosed in a neat aluminium case, which revolves with the shaft, and between this case and the gear-box itself is the foot-brake, which, on this model, is of the internal expanding type.

As a protection from mud and dust, the under part of the chassis, of each type, is protected with a close-fitting metal shield which extends from beneath the radiator to behind the gear-box, and thus thoroughly encloses all the moving parts likely to be affected by dust, while at the same time presenting a smooth surface to the air which, in the prevention of eddies, should do something towards minimising the amount of dust raised by the car. Numerous doors are, of course, provided in this shield, so that the in-

spection or parts from the outside is not interfered with to any extent.

The length of the wheel base and track on the various models are as follows:—16-h.p. wheel base 2'86 m.

The arrangement of the spring, E^5 , is clearly indicated in Fig. 10, and it will be noticed that when the clutch is engaged, the pressure of the spring imposes no end thrust on any shaft. When the clutch is disengaged, the thrust of the spring, E^5 , tends to draw the crank-shaft backwards, but this is, of course, resisted by the crank-shaft bearings. In the same illustration (Fig. 10) will be seen the adjustment-nut, E^6 , which—being outside—is consequently very accessible. The drive is transmitted through the sleeve, E^2 , to the enclosed universal-joint, E^3 , and so to the shaft, E^4 , which leads to the gear-box.

The gear-box itself is supported at three points only, in order to render it independent of any twisting which might take place in the frame. The lay-shaft lies immediately below the "through" shaft—on which the single sliding member is mounted—and both shafts run on ball bearings. Four forward speeds and a reverse are provided, and on the top speed the engine drives direct to the differential countershaft. Inspection covers are provided in the gear-box, and in the casing over the differential countershaft.

On the countershaft, to the left of the gear-box, is a ratchet wheel, with which a pawl can be brought into engagement—by means of the pedal, G —in order to act as a sprag. The sprag-pedal, G , is visible in Fig. 11; it is situated between the brake pedal (on the right) and the clutch-pedal (on the left); it controls the pawl through

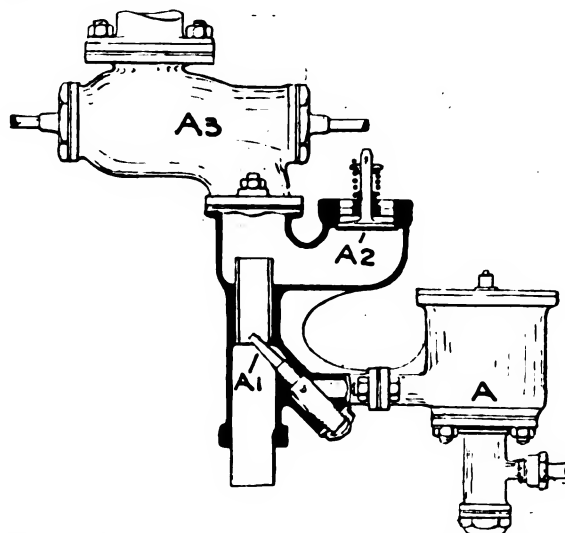


Fig. 9.—Elevation of the Delaunay-Belleville Carburetor, showing the mixing-chamber in section.

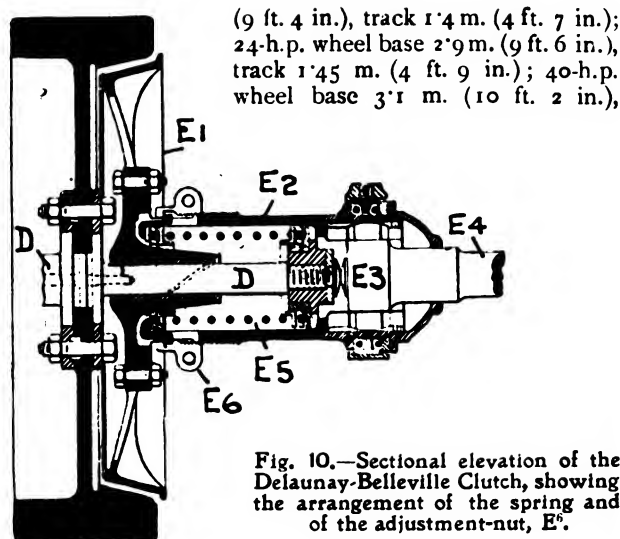


Fig. 10.—Sectional elevation of the Delaunay-Belleville Clutch, showing the arrangement of the spring and of the adjustment-nut, E⁶.

track 1'45 m. (4 ft. 9 in.). Both the 24-h.p. and 40-h.p. models are shod with 880 × 120 mm. tyres back and

front, while the 16-h.p. car has the same sized tyre on the rear wheels, but is fitted with 875 × 120 mm. tyres in front.

In all respects, it will be noticed, from the numerous photographs which we have given, that the closest attention has been given to detail as well as to the general construction of the whole, and there can be no doubt that Messrs. Delaunay-Belleville have succeeded in designing a machine which cannot fail to appeal to a very large section of the motoring public, both on the Continent and on this side of the Channel.

Table of Reference Letters for the 24-h.p. Delaunay-Belleville Car.

A	Float-feed-chamber.	D	Crankshaft.
A ¹	Jet.	U	Connecting-rods.
A ²	Auxiliary air-valve.	C	Clutch-pedal.
A ³	Throttle-valve.	E	Inner clutch member.
A ⁴	Accelerator-pedal.	E ¹	Driving sleeve.
B	L.-T. magneto.	E ²	Universal joint.
B ¹	Tappet rods.	E ³	Shaft to gear-box.
B ²	Switch contacts.	E ⁴	Clutch-spring.
C	Oil-pump casing.	E ⁵	Adjustment for E ⁴ .
C ¹	Plunger.	F	Brake-pedal.
C ²	Cylinder.	F ¹	Brake.
C ³	Valve-plate.	G	Sprag-pedal.
C ⁴	Inlet port.	G ¹	Sprag-rod.
C ⁵	Delivery port.	H	Petrol tank.
C ⁶	Feed-pipes		

RAILWAYS AND MOTOR VEHICLES.

THE Great Eastern Railway are considerably extending their road motor car services in connection with their rail system. In addition to the routes previously covered by the Company, they have decided to run the following additional services:—Between Lowestoft, Oulton Broad, and Carlton Colville; Norwich, Loddon, and Beccles; Colchester and Mersea, Chelmsford and Writtle; Chelmsford and Danbury; Chelmsford and Great Waltham; Clacton and St. Osyth; Ipswich and Shotley. In some of the special bills issued by the Company in regard to these motor omnibuses, the Company, possibly appreciating the condition in which many of the local authorities maintain, or rather fail to maintain, their roads, protect themselves in regard to the running of the services by the words "conditions of road permitting."

JUST as the railway companies, far from eliminating the horse, have become the chief horse users of the kingdom, so they are more and more developing motor traction to feed their railways. In addition to the success and extension of the Great Eastern Railway Company's motor 'bus service, the Great North of Scotland Railway is now promoting a Bill in order to enable them to run a number of motor 'bus services to feed their railway in the thinly populated districts adjacent to it. These districts stand badly in need of improved means of communication, but the population is so sparse that light railways, even with Government support, would be out of the question. The company hope to successfully cope with the situation by means of motor 'buses and motor delivery vans.

It is curious to note in respect to the extension of motor services by railway companies and others sufficiently enterprising to take up this form of locomotion, that in many districts ridiculous opposition is offered through residents and members of the local council,

simply upon the principle that local tradesmen should have all the benefit of any innovations. The trouble, however, in questions of this sort is generally that the local tradesman has little or no enterprise or initiative to take the matter in hand himself, and, consequently, acts the dog-in-the-manger, in which he is often backed up unreasonably by the somewhat narrow-minded views of the local council. A case in point is the application to the Clacton Urban District Council recently by the Great Eastern Railway for a licence to run motor omnibuses to St. Osyth, a service which was started this week. Following the presentation of a memorial signed by several local jobmasters, it looked for a short time as if the application might be refused simply because the local jobmasters, according to the memorial, were the possessors of a certain number of horse-drawn brakes and omnibuses. This application of the Great Eastern Company, however, together with another from a local resident, fortunately complied with the principles boldly enunciated as governing the Urban Council, viz., that licences and privileges of a beneficial trading character should only issue to actual ratepayers in the district. In other words apparently, therefore, the Council of this otherwise up-to-date town are prepared to set their face against all improvements in any respect whatever, which emanate from any outside source, unless one or more of the local inhabitants are personally likely to reap the major part of the profit of the transaction. Fortunately, the Council have a strong vice chairman in Mr. Thos. Cox, whose tersely expressed views that the licence should be granted, carried sufficient weight and support from the rest of the Council to overrule the non-progressive members, one only at the finish registering his vote against "Progress." Possibly the same principle is accountable for the "hanging up" of the Clacton Motor Race Course, at one time spoken of so hopefully, and which now and again shows signs of being brought to life once more. But somehow we do not think that *that* is the only reason in this particular case.

SPRING WHEELS FOR MOTOR CARS.

(Continued from p. 105.)

THE HALLÉ SPRING WHEEL.—I.

DESIGNED on somewhat original lines, the Hallé spring wheel—brought out by Mr. Clifford Hallé, who is already well known in connection with the automatic rifle bearing his name—differs considerably from the other spring wheels which have so far come before our notice. The original idea of the invention—for which Messrs. C. S. Rolls and Co. have secured the sole agency—was to use only one spring, and this object has been attained by an ingenious arrangement of links, placed between the hub-member and the wheel proper, by which the radial forces, tending to make the hub and the wheel eccentric to one another, are transmitted to a helical spring surrounding the hub. It was found, however, that this particular arrangement was such that the spring was too easily compressed by the initial load, and for this reason it has been deemed advisable to employ supplementary springs arranged in a more orthodox fashion, and in such a way that their principal use should be in damping out the lighter shocks to which a wheel is constantly subjected. No alteration in the general principle of the wheel was necessary to accommodate these supplementary springs, except that the central spring surrounding the hub was divided to allow a collar to be placed on the centre of the hub, from which spokes could pass outwards for supporting the supplementary springs. Since its original state, however, the Hallé wheel has undergone several modifications as regards the arrangements of these supplementary springs, and now, in its latest form, not only do they give the requisite stiffness at light loads, but they are so arranged that, for normal running over a theoretically smooth road, the hub and the rim are maintained concentric, an important feature, which considerably reduces certain frictional and other losses, as will be explained presently.

Fig. 1 shows an early form of the Hallé wheel, which will, however, be better understood by reference to Fig. 2, in which is shown a front elevation and two sectional side elevations of this wheel; of the latter, that on the left represents the wheel in its normal unloaded state, while that on the right shows the effect produced by the load in making the hub eccentric to the wheel proper.

Before actually describing the construction of the wheel, it may be as well to consider the principle of its action as diagrammatically illustrated in Fig. 3. In

Fig. 3, X, Y, Z represent three bars which are linked together "parallel-ruler" fashion by the hinged links, C; the centre bar, Y, represents the wheel proper, and the two outer bars, X and Z, represent sliding flanges attached to the hub. It will be obvious that any force applied axially to the centre bar, Y, tending to raise or lower it relatively to the outer bars, X and Z, will tend to move these two bars either towards one another or away from each other, according to the relative initial positions of the three bars. Conversely, too, any force tending to push the two outer bars farther apart will tend to lift or lower—as the case may be—the centre bar, Y. Both these actions are employed in the Hallé wheel; the road should tend to make the hub eccentric to the rim—which is equivalent to lifting the centre bar, Y—and a strong helical compression-spring, interposed between the two outer bars, X and Z, opposes this relative motion

of the centre bar, Y, and restores it to its original position after it has been moved. When quite unloaded, the wheel is in the state represented by the left hand diagram in Fig. 3, where the links, C, are at right angles to all three bars, X, Y, Z, being retained in that position by the action of the spring (not shown in Fig. 3), which tends to force the two outer bars, X and Z, as far apart as the links, C, will allow. Any relative motion of the centre bar, Y, from this position will shorten the distance, "a," and thus compress the spring; such a condition is shown on the right of Fig. 3, and this represents, diagrammatically, the relative position which the principal members of this spring wheel assume under working conditions. It must be understood that with this, as with other

Fig. 1.—The Hallé Spring Wheel. View of one of the original Hallé Spring Wheels fitted to a car for experimental purposes.

spring wheels, the hub is normally eccentric to the wheel proper—except in such wheels as those of Mr. Hallé's very latest type—and that the effect of shocks due to uneven roads is merely to emphasise this eccentricity. It will be noticed, too, that the construction is such that the wheel is virtually a single unit, so far as sideways forces are concerned, and that although the centre member can (with the arrangement of the links, C, adopted in practice) be made to lie obliquely between the two outer members, yet the spring is at all times in such a position as to directly resist any such displacement. An interesting point in the principle of the wheel is the relative effectiveness of a given load in compressing the spring under various conditions. With the links extended to their full length, as in the left-hand diagram in Fig. 3, the load exerts a very powerful

force over the spring, and a comparatively slight load will be sufficient to compress the spring to a certain extent. As the eccentricity between the hub and the wheel increases, the resisting power of the spring is rendered

were twofold. In the first place, the supplementary springs were being periodically deflected and released—a source of lost power which may be likened to a car always going uphill—and in the second place,

Fig. 2.—The Hallé Spring Wheel.—Elevation and Transverse Sections of the Wheel. The section on the extreme right shows the wheel when the hub is eccentric to the rim, and illustrates the action of the links, C, in compressing the spring, D, by means of the sliding flanged sleeves, B².

more effective owing to the obliquity of the links, C, and finally—for exceedingly eccentric positions—the effect of the springs is relatively greater than the effect of the load. If the spring is stiffened up, or given greater initial compression, in order to be sufficiently effective at light loads, it will be too strong at heavy loads, and will not sufficiently damp out the serious shocks caused by the more uneven road surfaces. The alternative is to use supplementary springs arranged to receive the initial loads with greater directness, and this alternative has been followed in the Hallé spring wheel. At first, four semi-elliptic springs were employed in the Hallé wheel, but as these were found unsatisfactory, they were discarded in favour of four volute springs arranged radially to the hub.

In the latest form of wheel the auxiliary springs are still volute in form, but instead of only four they number sixteen. In the two former types of wheel, the auxiliary springs formed a complete inter-acting "system" in which they were in equilibrium among themselves, that is to say they were sensible to any external force. When the wheel was in place, therefore, the axle at once became eccentric to the rim, by virtue of the weight of the car alone, being suspended in that position by one, or at the most two, of these supplementary springs, which were of course assisted in this by the action of the main helical spring surrounding the hub. The objections to this normal eccentricity

certain links—to be described later—used in the construction of the wheel, were, by their enforced obliquity, a source of constant friction. The very latest type of Hallé wheel has been designed to overcome both these drawbacks and, although the supplementary springs are still of the volute pattern, they are each self-contained in such a way that they can be made to carry the dead load of the car without deflection. The springs are now arranged no longer form a "system," and, in fact, the wheel is to all intents

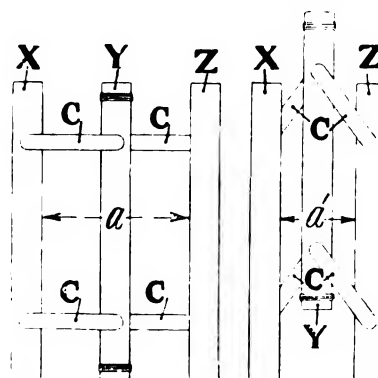


Fig. 3.—The Hallé Spring Wheel.—Diagram explanatory of the action of the wheel.

and purposes "solid" until the load exceeds a certain predetermined minimum. Directly this takes place—as it very easily does under quite ordinary road shocks—both main and supplementary springs begin to compress simultaneously, the only difference in their effect being that whereas the main spring may be relatively less effective

than the auxiliary springs at first, its power of resistance—owing to its peculiar position—very rapidly increases with the "eccentricity" and the wheel is less effected by the heavier shocks than it would be were all the springs radial to the hub.

(To be concluded.)



MOTOR CYCLING.

AUTOCYCLE CLUB'S RELIABILITY TRIAL.—Lining up for the start outside the Club Garage.

AUTO-CYCLE CLUB'S RELIABILITY TRIAL.

THE second annual trial for motor cycles and tri-cars organised by the Auto-Cycle Club, started on Monday last and concludes to-day (Saturday). Of the 33 entries—of which full particulars were published by us last week—only one (No. 33, 4-h.p. Barnes) failed to turn up at the start, which took place from the Club Garage in Down Street at 9 o'clock Monday morning. Last year, it will be remembered, a start was made from the neighbourhood of Regent's Park, but although the Garage is scarcely an ideal situation for a meeting of this description, yet it saved considerable time and confusion to use it as such this year.

There was very little of novelty noticeable in any of the machines assembled for the trials. One or two of the bicycles had more than usually efficient silencers, three had twin-cylinder engines, and a few were fitted with some form of spring suspension for the front wheel. Of these latter, a 3½-h.p. Vindec (No. 3) had the Truffault suspension, which consists of a helical spring inserted in the front tube, and a friction damping device arranged outside, the damper being merely a pair of semi-cylindrical brake shoes pressing against the side of a round rod. The two Werner bicycles (Nos. 6 and 7) also had a spring suspension, but in this case, the front wheel is mounted on a separate bracket fulcrumed about the lower end of the front fork. Helical tension springs, attached to the front fork and to lever arms projecting rearwardly from this bracket are used to give the necessary spring support. In the 3-h.p. Triumph (No. 19), the spring is introduced so as to act in quite a different way. The front forks of this machine are mounted on a horizontal trunnion, and a lever-arm projects upward from the front fork, and is connected through springs to the front tube. The arrangement is such that the wheel can recede bodily backwards when meeting a large obstacle, but at the same time the "rake" of the front forks is such that the ordinary up and down vibration is also damped to a large extent by the same device. On one other machine, a 3½-h.p. Rex (No. 9), Hallé spring wheels were used, and both back and front were shod with solid tyres.

Eight tri-cars were entered, among them being two French machines—the Mototri-Contal—primarily designed as carriers. The engine is water-cooled and a single reduction-gear is introduced

between the crank-shaft and the chain-drive to the rear wheel. This reduction-gear is carried by the crank-chamber, and although arranged outside, it is thoroughly enclosed. Inside the rear hub is a two-speed epicyclic gear. A foot-pedal is conveniently arranged to "free" the gear and, when fully depressed, to apply a brake. One of the features of the machine is the arrangement of the tanks and cupboard for accumulators immediately behind the front seat, thus minimising as far as possible the length of all pipes and wires. Luggage and tools are carried under the front seat, which is hinged to give access to the box beneath it.

The question of luggage is a serious matter on tri-cars, and, as most of them have no conveniences, it is necessary to strap a bag—and that an inconveniently small one—on the footboard or behind the saddle. One of the Riley tri-cars (No. 29) was fitted with a small box for luggage and tools on one side of the driver's seat and a similar box on the other side for the accumulators and coil, but

AUTOCYCLE CLUB'S RELIABILITY TRIAL.—The 8-h.p. Leader, fitted with a twin-cylinder engine and two-speed gear.

The 4-h.p. Mototri Contal, a French made machine, driven by Gaston Rivierre.

AUTOCYCLE CLUB'S RELIABILITY TRIAL.—TWO OF THE TRI-CARS.

the box naturally provided somewhat limited accommodation. The 6-h.p. Leader tri-car (No. 28) is, except in one or two points, of the usual type. One of the features is that the back wheel can be removed very easily and two separate silencers are employed, one for each cylinder. A particularly neat accumulator box, in which the cells are prevented from shaking about, and the box is kept water-tight, is fitted to this machine.

On the 6-h.p. Quadrant, there are two separate engines arranged side by side, both driving on to a common countershaft by chains. Separate chains pass from this countershaft to different-sized chain sprockets on either side of the rear-wheel, and either chain may be brought into operation at will, by means of clutches, to give the high or low gear. The engines are not intended to run independently, although as originally designed the two engines could be uncoupled; this feature, however, has now been eliminated because it was not found advisable. Jockey pulleys are provided for tightening up the chains between the engines and the countershaft.

In the majority of cases, no attempt is made to suspend the rear-wheel independently of the frame, and the Lagonda tri-car is, therefore, particularly interesting for the departure which it makes in this direction—the rear-wheel being supported from the frame by a pair of long leaf springs.

Taking the tri-cars as a whole, there appears to be no improvement with regard to protecting the engine from mud and dust, although some of the machines are now much better made. A marked increase in the engine power is noticeable in certain cases,



Tyre Repairs.—Success or failure depends, when repairing a tyre, very greatly on a methodical manner of doing the work, and many amateurs fail in their arduous but often essential process of renewing an inner tube or cover, merely because they have never given even a small amount of study to the question. All tyre firms now issue little instruction booklets, and that issued by the Michelin Company, the latest edition of which is just to hand, embodies in the smallest possible space an amount of information on the subject of tyre repair, which, once mastered, would make the veriest novice more at home with his work, and do much to minimise the annoying effects which too often arise through the work being carried out imperfectly.

SPEAKING at the luncheon of the Welbeck Tenants' Agricultural Society, the Duke of Portland recently said that while he objected to the automobile "road-hog" and reckless driver as much as any one, he would impress on horse drivers and dog owners that they should do what they could to prevent wilful obstruction of motor cars; though some motors had objectionable features they had as much right to the road as other people. His Grace also welcomed the appointment of the Royal Commission on the motor car question.

The 4½-h.p. Riley, showing the position of the accumulator and tool boxes on either side of the driver's seat.

however, the Riley (No. 32), for instance, having a twin-cylinder engine developing about 12-h.p. This machine was fitted with 3½-in. Dunlop tyres, that on the rear wheel being covered with a non-skid band, but even with these comparatively large tyres the strain on the single rear wheel, which generally runs in the worst part of the road, is enormous, and the difficulty of obtaining enough adhesion for the power transmitted would also appear to be a drawback. Just where the tri-car with an engine of this high power possesses any advantage over a light car—assuming that a tri-car of any description is a desirable machine—it is difficult to say. The light car with an engine of 12 h.p. certainly offers more comfortable accommodation, the repairs bill would probably be less and the life longer, while the speed—which is presumably the real attraction in the lighter machine—would be as fast as is desirable with a car of such build.

THE Auto-Cycle Club's revised open competition rules have been finally passed by the Auto-Cycle Club, and are now in force.

Under these rules, no open meeting, competition or trial shall be held without a permit from the Auto-Cycle Club. The fee for the permit will be one guinea for each day of a meeting. To clubs affiliated to the Auto-Cycle Club the fee payable is one half-guinea for each such day, and clubs affiliated to the National Cyclists' Union holding a meeting upon a track are exempt from the payment of a fee.



By an oversight in drawing up their advertisement announcements in connection with the recent Blackpool Race Meeting, the Daimler Motor Company stated that their 35-h.p. car had beaten amongst others in their class the 40-h.p. De Dietrich. As a matter of fact this is not correct, inasmuch as although the De Dietrich car was amongst the list of entries, it did not actually compete, and, therefore, should not have been included in the Daimler Company's list of triumphs. In justice to Messrs. Jarrott and Letts, Limited, who are the agents for the De Dietrich cars in this country, the Daimler Company are anxious to rectify this unintentional mistake made in their advertisement department.

A VERY valuable testimony to the De Dion cars has been received by the London representatives of De Dion Bouton, Limited, from Mr. G. B. Hamilton, of 31, Deodar Road, Putney, S.W., who writes as follows:—

"Perhaps it will interest you to know what I—a layman—think of your car for everyday work. Well, we have used it regularly over some of the worst roads of East London—and they are bad—for eight months, covering something like 7,000 miles, constantly stopping and starting, and during all that time it has never given us the least trouble. I do not think the car has cost 20s. for repairs and does everything within reason admirably. Of course, we have a good chauffeur, and we use the car in a rational manner."

THE TOURIST TROPHY—(continued).

THE article on this subject, in which we not only attempted to familiarise our readers with the fundamental principles of this novel type of competition for touring cars, but also put forward various suggestions for future years, appeared in our issues of July 15th, 22nd and 29th, and in our editorial front paragraphs we invited all those who took sufficient interest in the automobile movement to write expressing their views. A number of useful communications from leading men have already appeared in our columns during the last three weeks, and we now publish a further batch of the numerous and very valuable contributions that have come to hand. We would again express our hearty thanks to all those who are coming forward and are helping to ventilate this important matter in the interests of the whole automobile industry.

To facilitate reference to the various specific points raised in our article, and referred to by our correspondents, we reproduce the summary of the chief suggestions put forward by us, as also the list of the weights, measures and dimensions that are specified by the rules for this year's race.

Suggested Modifications of Rules for Future Years.

- (1) The bodies to be comprised of four independent parts.
- (2) No cars to have engines with less than two cylinders.
- (3) No cars to have more than four forward "speeds."
- (4) Any obvious "freaks" may be refused entry at discretion.
- (5) Any unduly noisy car may be disqualified at discretion.
- (6) The race to extend over two, or three, consecutive days.
- (7) The cars to start, at equal time-intervals, in order of numbers.
- (8) The cars to be stopped, timed, and re-started immediately, at numerous "controls."
- (9) The cars to carry numbers denoting laps completed.
- (10) The cars to be driven by different drivers each day.
- (11) A class to be instituted for two-seated cars, to compete separately, and on other days.

Specified Weights, Measures, and Dimensions in the Existing Tourist Trophy Rules for this Year.

- (A) *Fuel Consumption*—1 gall. per 25 miles (dry, average road).
- (B) *Weight of Body and Load*—950 lbs. (including 300 lbs. ballast and 22 stone passengers).
- (C) *Weight of Chassis*.—Between 1,300 lbs. and 1,600 lbs.
- (D) *Wheel-Base*.—Not less than 7 ft. 6 ins.
- (E) *Track*.—Not less than 4 ft.
- (F) *Platform behind Dash*.—Not less than 6 ft. 6 ins. long and 2 ft. 6 ins. wide.
- (G) *Width of Seats* (each pair).—Not less than 3 ft. 4 ins. (between cushions).
- (H) *Height of Seats* (from ground).—Not less than 2 ft. 10 ins.

VIEWES AND OPINIONS OF OUR READERS.—IV.

Mr. Henry Sturmev:—

I accord generally with the views expressed and with your remarks concerning the Tourist Trophy. I consider the race should, as far as possible, be for just the standard tourist cars being regularly put out by the manufacturers, and that manufacturers should not be called upon to build special designs—in many ways differing from their standards—for the event. If they have to get out special cars they are almost certain to produce freaks, or at any rate very different cars to those with which they are supplying the public. The best way to check this is not to issue the final conditions and open the entries until say ten or twelve weeks before the race. There would not be time then to design and construct "freak" machines. Taking up the points you raise, I am inclined to think a fairer comparative test would be obtained by a limitation of cylinder capacity and engine speed, or, as you put it, "the total cubic displacement of the pistons per minute," and these conditions are not difficult to check. Length of stroke and piston diameter can in most engines be measured without taking the engine down, and if the cars were timed at several unknown spots along the route when they would be running "all out" on their top gear, and liable to disqualification if, on that showing, the calculated speed ratio of the engine exceeded the limit, the check would be sufficient for all practical purposes. The present limitations as to weight of chassis and weight of body with load appear to be practical, but to make a body in four pieces as you suggest is quite off the rails, as to obtain reasonably strong body construction without undue weight the support from either side is necessary. As to wheel-base, 7 ft. 6 in. is a good average length. We, too, had a sudden rush on the long wheel-base this year, but manufacturers are finding that very long cars, are, in many cases, inconvenient to handle, and so not acceptable to their customers, whilst the difference in strength between, say, a 7 ft. 6 in. and an 8 ft. 6 in. frame is very marked. If number of gears are to be restricted, I think the number should be three, as the tendency to-day in commercial work is all towards a reduction in the number of gears. The Duryea cars, in which I am interested, use two only, and quite the majority of light cars, such as this contest deals with, are fitted with three only. I quite agree that single cylinder engines should be barred, as for cars of the type used they are now never employed, but of two-cylinder engines there are more in use probably than any other in "light touring cars." I cannot agree with the suggestion that different drivers should be employed each day if the race is extended, as that would not be fair to the smaller firms who do not keep large staffs of drivers.

Henry Sturmev.

Dr. C. W. McMurtry:—

Re the "Tourist Trophy," permit me, as one who has spent several summers in touring through the mountainous portions of the Continent, to make several suggestions concerning some points which have apparently been overlooked up to the present, but which, nevertheless, are of decided importance in a car from the real motor tourist's point of view.

1. *Luggage Carrying Capacity*.—You cannot tour with comfort without a sufficient amount of luggage, sufficient to enable one and one's passengers to be appropriately dressed. The luggage should be carried in such a way as to be protected from dust, mud, and rain, not encroach upon the space for the passengers, and be fastened to the car in such a manner as not to affect the balance of the vehicle even at high speeds and when turning corners.

2. *Good balance stability and absence of swing in turning corners* and at high speeds are, next to mechanical reliability, perhaps the two most important points a real touring car can have. While they receive the most careful consideration from designers of fast steamships, locomotives, railway carriages, and even the slower vehicles, mail coaches, &c., automobile engineers and body builders apparently attach little importance to the balance and stability at high speeds of their cars. One has but to look at the illustrations of many types to notice this flippant disregard for the laws of equilibrium and gravity. Hence the bursting of a tyre is sufficient to cause many a car to—like any other top-heavy object—simply topple over. The heavy and unnecessary strains thrown on the transmission, springs, rear wheels, and tyres as the result of a badly designed and ill-balanced body are also to be considered.

3. *Ability to turn the bends of typical mountain roads without using the reverse speed*.—The most beautiful mountain roads in Europe, such as those of the Stelvio Pass, the Col du Galibier, Col du Petit St. Bernard, &c., all have sharp turnings, at which there is usually a wall of solid rock on one side and the edge of a precipice on the other. When one, on account of insufficient lock to the steering wheels, has been obliged to manœuvre his car backwards and forwards on a slippery road, with the outside wheels within a few inches of a sheer drop of several hundred feet into a mountain valley, in order to turn a corner, his experience will lead him to seek some car with a good—though not exaggerated—steering radius. In traversing the narrow, winding streets of Italian and Spanish villages, such extra steering radius is absolutely indispensable.

4. *Absolutely efficient cooling apparatus for the motor*.—The writer is convinced that a motor of more than 24 to 30 h.p. is unnecessary even for the longest Continental tours and steepest mountain roads. Such overpowered motors are a disadvantage on account of their excessive weight, their heavy consumption of oil, petrol, and the strain they throw on the chassis, and particularly on account of the practical impossibility of their being driven at low speeds without great vibration and overheating.

What is needed by the practical tourist is a 24-h.p. car with such large radiator, water pump, pipes, and cylinder jackets as to absolutely preclude the possibility of loss of power through overheating, even on such roads as the Stelvio and Galibier passes, and after a whole day's running through crowded city streets.

I therefore suggest that the capacity of the water cooling system of each car be accurately ascertained, and the consumption of water be controlled throughout the trials.

5. Absolute and complete control of the car—except for changing speed—without removing the hands or even the fingers from the steering-wheel.

"Never abandon or forget your steering-wheel" is a well-known maxim, and to it I would add the firmness of your grip with both hands on the steering-wheel must increase in direct proportion to the car's speed. This is obvious. Therefore a car capable of high speeds, but for the control of which it is necessary to remove one hand from the steering-wheel, even for a moment, is highly dangerous, and should be publicly branded as such.

The above suggestions are simple, and demand no freak mechanical changes in the classic models of to-day, merely more thoroughness and care on the part of our only too frequently supercilious and, as regards *real touring requirements*, often ignorant designers of touring automobiles.

Charles Wood McMurtry, M.D.

Mr. H. Massac Buist:—

The Tourist Trophy is likely to differ from all former motor car races in that one of its chief aims will be to win the attention of the lay public in such a manner as to produce a favourable frame of mind in persons at present averse from the motoring movement. It should be the task of the organisers to interest two distinct sections of that public, namely, those who will be present to witness the competition, and the far larger body which can only be reached through the medium of the printing press and the camera. I hold that sufficient attempts have been made in most European countries to have demonstrated that the erection of stands for the accommodation of spectators at motor car races is distinctly an unsatisfactory method of enabling visitors to follow the progress of such events. Nature has furnished Manxland with grand stands in plenty, and, having the physical features of the island in mind, I would suggest that enterprising speculators might band themselves together in some organised scheme for enabling those onlookers who have not motor cars at their disposal to witness the race from more points of the course than one. This might be done (1) by setting up temporary toll bridges at certain suitable intervals around the course, where, for a nominal charge of a penny, persons would be allowed to get from the outer to the inner side of the circuit, or the other way about; and (2) by running a service of char-a-bancs inside the course from one point or place of interest to another, as, for instance, along the main road westward from Quarter Bridge, and so forth. Many onlookers would gladly spend between five and ten shillings on the day of the competition in getting about the course who would grudge half-a-crown for a seat that would prove wearisome to them after the first hour. For those who have their own vehicles there might be shilling subways to enable them to get inside the circuit at points beyond which it would be inconvenient or impossible to continue a tour round the course on the outer side. Such cuttings, however, might prove too costly for the occasion, unless the Manx authorities were to be given some sort of a guarantee that their island is to be made the scene of all long-distance motor car speed competitions in the United Kingdom.

The spectators will also want official information as to the incidents of the day. I do not mean time boards, which it would be practically impossible to keep posted up to date in a race in which upwards of 50 cars will be competing. They will want to know who has been delayed, or who has abandoned, and where and why and who are the leaders from time to time. With the issue of a proper 2d. official programme—which incidentally should prove a source of revenue to the club—it should be possible to enable visitors to grasp the development of affairs if at, say, half-a-dozen of the chief points of the course the facts enumerated were announced by megaphone at certain pre-arranged and announced periods of the day, as, for instance, every half hour. The information could be jotted down on the programmes, and the news would not be long in circulating. The average onlooker does not want complete statistics, but merely the leading facts concerning what has just been taking place. There is also a good idea at the back of Mr. Claude

Johnson's suggestion about the cars carrying coloured numbers, but I fear the scheme as at present put forward would prove a means of delaying the competitors. At least it would entail certain pauses in control—a system which is likely to prove a great source of difficulty for the officials as regards preventing the cars getting into a hopeless muddle. The ideal method would be to have no controls whatever, or at most merely replenishing places. It is the control business that fogs the lay spectator and upsets all the calculations he may be making.

In regard to the public that can only follow the event through the medium of the Press, it would be helpful if subsidiary prizes were offered for such points as excellence of driving, tyres, petrol, cooling, brakes, and body work, that prominent attention might be drawn to each of those points, thus reducing the element of luck by which, conceivably, one car that was obviously not the best of the competitors might get all the attention of the public because it happens to win the speed-cum-fuelage race. The notice that would be attracted by the subsidiary prizes would go far towards distributing the amount of advertisement to be had from the competition by the entrants. If such awards could be announced on the evening of the race—by means of some previous expert judging, plus the day's performances—the aim would be achieved to an ideal degree, the public memory being short, and the difficulty of obliterating first impressions great.

Complete net running times per lap should be issued for publication to prove to the public that when these presumably useful sizes of touring cars are being raced by expert drivers it is impossible for them to exceed the legal limit by more than 5 or 6 miles an hour. At present the man in the street is convinced that almost any motor car that is not obviously crippled is capable of speed ranges up to between 60 and 70 miles an hour, and the persistent proving of the true facts is the only way to disabuse his mind.

H. Massac Buist.

Mr. A. A. Remington:—

The Tourist Trophy Race is an attempt to so re-arrange racing rules as to once more let motor car races assist towards the production of the perfect vehicle, and at the same time provide a spectacle for the public, and, if possible, awaken some enthusiasm.

It is always exceedingly difficult to combine the useful with the ornamental, and the results of this attempt will, without doubt, be very instructive, both as regards data for the improvement of the rules as well as of the vehicles.

The object of such a race must necessarily be towards the improvement of the *bona fide* touring machine, the most important requirement of which is, at the present time, putting on one side the necessary refinements as silence, elegance, &c., the ability to maintain a maximum average rate of travel with the least possible maximum speed.

The rules do not appear to provide for this point, and it appears as if high-speed coasting will go a long way towards success.

Undoubtedly the rules encourage "freak" construction in certain directions if manufacturers take the trouble to design anything specially for the event, which is very questionable.

An engine with a variable compression ratio together with a variable suction-pressure, so as to get a high expansion ratio on light loads, would have a considerable advantage. The average output of all the engines will necessarily be considerably below their maximum, and this is just where the ordinary engine is so wasteful, while an engine on the above lines would be more economical than at full load, although undoubtedly a "freak" and not commercially useful.

This is only one point, but many others exist and only require searching for.

Further, why limit the chassis weight? Surely a minimum would be sufficient, and having stipulated such a minimum, and the minimum body requirements, what necessity is there to stipulate a minimum wheel-base.

These restrictions are not only unnecessary but galling, as in many cases, no doubt, manufacturers' standards for first-class cars lie just outside the tolerance given.

Doubtless, one race under the existing rules will show many more improvements than volumes of letters, and it is well to know we are at last moving, however slightly, in the right direction.

A. A. Remington

MOTOR BOATING.

MOTOR YACHT CLUB RACES AT SOUTHAMPTON, AUG. 12.—Mr. H. Perman's "Pallas," fitted with 28-h.p. Daimler engine, winner in the 30-ft. class.

MOTOR YACHT CLUB'S RELIABILITY TRIALS. MARKS.

Number.	Competitor.	Marks gained by performance.				Marks awarded by Judges.					Total, 330.
		Reliability, 100.	Speed, 50.	Economy, 20.	Condition after Trial, 100.	Arrangement, tanks and fittings, 35.	Efficiency of reversing, 10.	Installation, 5.	Control, 5.	Silencing, 5.	
CLASS II.—Yachts' Launches (not exceeding 20 feet overall).											
1	Groves and Co.	A	A	A	25	—	5	—	2	5	—
2	Thornycroft ...	—	50	20	100	15	10	3	5	5	208
3	Ashton-Kilner ...	B	B	B	—	—	—	—	—	—	—
CLASS III.—Yachts' Launches (not exceeding 25 feet overall)											
4	A. E. Fentiman	23	30	—	100	30	10	3	5	—	201
5	Thornycroft ...	100	34	11	100	15	8	3	5	5	281
6	P. C. Crossley ...	C	C	C	100	20	10	4½	5	5	—
7	Mitcham Co. ...	100	21	—	100	35	10	4	5	5	280
8	Strickland ...	81	50	17	100	35	8	5	2½	5	303½
9	De Dion ...	100	7	18	100	15	5	2	5	5	257
10	J. W. Stocks ...	88	7	20	90	15	5	2	5	5	237
11	Scott, Stirling ...	C	C	C	90	15	8	2	5	5	—
CLASS IV.—Yachts' Launches (not exceeding 30 feet overall).											
13	Forster...	100	31	15	100	20	6	3	5	5	285
14	Strickland ...	100	49	18	100	35	10	3	2½	5	322½
15	Thornycroft ...	36	47	—	100	20	—	3	5	5	216
17	Maudslay Co. ...	100	46	2	90	25	10	4½	5	5	287½
18	E. A. Chard ...	D	D	D	100	20	10	3	5	5	—
19	Parsons Co. ...	72	44	20	75	10	5	2	5	5	238
20	Visct. Royston...	100	50	10	100	35	10	5	5	5	320
21	Perman ...	86	28	6	100	30	9	4½	5	5	273½
22	Perman ...	A	A	A	75	15	10	4	5	5	—
CLASS VI.—Unrestricted Vessels of any description exceeding 25 feet overall.											
25	Capt. Dixon ...	30	50	—	100	35	10	4½	5	E	234½
26	J. P. Dean ...	D	D	D	100	15	5	3	5	E	—
27	Lord de Walden	C	C	C	50	35	10	2	5	E	—
28	Manville Gorham	D	D	E	100	35	10	3	5	E	—
29	A. B. Collis ...	100	34	E	100	5	5	2½	5	E	251½
30	Wolseley ...	D	D	E	—	—	—	—	—	—	—
CLASS VII.—Sea-going Motor Yachts with permanent cabin accommodation.											
32	Woodnutt ...	36	50	E	100	35	9	3	5	5	243
33	S. F. Edge ...	100	31	E	100	35	10	5	5	5	291
35	Perman ...	100	37	E	100	35	10	5	5	5	297
36	Thornycroft ...	—	—	—	90	25	10	3	5	5	2135
37	Thornycroft ...	—	1	E	100	35	10	5	5	5	160

Judges' remarks on seaworthiness. Boats entered for open course only:—

A good sea boat for her size—Nos. 4, 5, 7, 8.

A good sea boat of her type—Nos. 13, 15, 17, 19, 20, 21.

A sturdy open sea launch—No. 14.

A wet boat in a head sea but seaworthy—No. 25.

A seaworthy vessel—Nos. 32, 33, 35, 36, 37.

NOTES.—A. Did not start on 2nd day; B. retired on 1st day; C. non-stop 1st day, retired 2nd day; D. retired on 2nd day; E. not marked in this class under rules.

IN our last issue we were able to give, in full, the list of awards and the judges' report on the trials, but, as we stated at the time, the detailed table of marks by which the judges awarded the medals was not then available. These particulars have now come to hand, however, and we append them in tabular form below. It shows in a most concise form on what points any particular boat "scored" over any other boats, and equally valuable is the footnote to the table in which the judges comment upon their seaworthiness.

With regard to reliability, the brief particulars of the breakdowns were given by us last week. Speed also was recorded in our table, but on the question of economy no information was then available. In Class II. the Thornycroft boat has been awarded full marks, while the little De Dion boats and the Simpson-Strickland steamboat "score" in Class III.; and the Simpson Strickland is again well to the fore in Class IV., only the Parsons boat, which used paraffin, gaining higher marks for economy. Most boats received full marks for condition after trial but a large percentage of full marks for arrangement of tanks, &c., is only noticeable in Class VII. Under the heading of silence, nearly every boat receives full marks, likewise for ease of control, but this evidently refers only to the engine because under "Efficiency of Reversing Arrangements"—which is a most essential element in the control of a boat—full marks are only given to comparatively few.

WITH reference to our table last week of Motor Boat Reliability Trial results, Messrs. Thornycroft write us that the smallest of their boats (No. 5), although originally entered for the sheltered course did actually take the open course on both days. Instead of covering only 55 miles, therefore, the distance was 73½ miles, and the speed in consequence 7·85 miles per hour—a most creditable performance for a boat of this size.

MOTOR YACHT CLUB'S RELIABILITY TRIALS.—The "Iris"—a petrol motor boat, entered by Messrs. Perman and Co., the engine of which was built by Messrs. Legros and Knowles. In general design, the engine in this boat follows the same lines as that employed on the Iris cars, but it has been specially constructed for marine work, and no aluminium whatever has been employed for any part, the base chamber being of cast-iron, and the pump, carburettor, and other small fittings, of gun-metal. The "Iris" marine set has been very carefully designed, great attention having been given to ensuring accessibility and ease of control without at the same time sacrificing anything to neatness and strength. Another great point, too, is that the plant is made as complete as possible in itself, and is built on a substantial bed-plate, thus minimising both trouble to the boat builder and expense to the purchaser. Although only completed just before the event, the boat ran splendidly throughout, the engine giving no trouble whatever.

THE local correspondent who wired the points about the "Entente Cordiale" Cup was evidently under a misapprehension with regard to the performance of the Brooke boat, and our report, last week, was in consequence unwittingly unjust to the victorious Napier II. which completed the course in 1h. 29m. 53 $\frac{3}{4}$ s., and made the fastest speed of the race (23 $\frac{1}{2}$ knots per hour). The complication arose through the Brooke boat break-

ing down and, after effecting a repair, returning, but without completing the course, just a few minutes ahead of Napier II. which had, of course, been over the full distance, while the semblance of a Brooke victory was increased by the elapsed time having been regarded as for the full course, although we learn from Mr. Mawdsley Brooke that he purposely steered his boat over the wrong line to avoid confusion.



CLUB DOINGS.

ABOUT forty members of the Leicestershire A.C. were present at a very successful Garden Party at Oadby Hill, on Saturday last, in response to the invitation of Mr. and Mrs. John Arthur Corah.

West Surrey A.C.—The second annual gymkhana was held on Saturday last in the grounds of Prior's Field, Compton, Guildford, kindly lent for the occasion by Mr. L. Huxley.

The prizes were presented by the Hon. Mrs. St. John Brodrick, who, after a tour of the course (600 yards long) on the secretary's car, was the recipient of a bouquet at the hands of Miss Victoire Fairtlough, daughter of the chairman of the club.

The results were as follows:—

Garage Race.—1st, Mr. Buttemer, 10-h.p. Decauville; 2nd, Mr. Knight, 8-h.p. Argyll.

Tilting at the Ring.—1st, Col. Howard Fairtlough, 12-h.p. Darracq; 2nd, Mr. Ponsford, 8-h.p. Clement.

Bending Race.—1st, Mr. Sichel, 10-h.p. Argyll; 2nd, Mr. Buttemer.

Starting Race.—1st, Mr. Williams, 18-h.p. Martini; 2nd, Mr. R. Crothers, 9-h.p. Darracq.

Passenger Race.—1st, Mr. Williams; 2nd, Mr. L. Pullman, 4 $\frac{1}{2}$ -h.p. De Dion.

Chalk Line Race.—1st, Mr. Williams; 2nd, Mr. Buttemer.

Glass of Water Race.—1st, Mr. E. Fairtlough; 2nd, Mr. Sichel.

Potato Race.—1st, Mr. Pullman; 2nd, Mr. Fairtlough.

The challenge cup presented by Sir A. Conan Doyle fell to Mr. E. Williams, as winner of most events.

A puncture race for members' chaffeurs was won by Mr. Ponsford's driver in excellent time.

A concourse of over 200 visitors assembled to witness the events, one result of which has been a substantial increase in the number of candidates for membership of the club.

The duties of judging were undertaken by Messrs. C. Crawley, J. F. Ochs, and J. Sparkes, while the timekeeping was in the hands of Mr. F. Straight.

COMMERCIAL POINTS.

A SPECIAL type of car is, we hear, being built by the well-known De Dietrich firm, to suit American and Colonial roads. The chassis, unlike those of the present standard models, is designed so as to give a considerable amount of clearance above the ground, and many of its parts—including the axles—differ materially from those hitherto employed.

MICHELIN tyres had a big innings in the Circuit des Ardennes Race, and this, following upon their remarkable success in the Gordon-Bennett Race recently, makes the manufacturers of these world-famed tyres particularly jubilant. The following are the gains which they made on the Ardennes Course:—

Voiturette Class (201 kiloms.).—1st, Wagner (Darracq).

Light Car Class (600 kiloms.).—1st, Montjoie (Darracq).

Heavy Car Class (600 kiloms.).—1st, Hemery (Darracq); 2nd, Tart (Panhard); 3rd, Leblon (Panhard); 4th, Wagner (Darracq); 5th, Heath (Panhard); 7th, Duray (De Dietrich).

AMONGST recent purchasers of Daimler cars are:—The Earl of Sandwich, the Earl of Redesdale, the Earl of Leven and Melville, Lord Windsor, Lord Algernon Percy, the Hon. A. H. Mills, Sir Percy Fitzpatrick, Sir Alfred Hickman, Bart., and Sir Hugh Shaw Stewart, Bart., M.P.

SERIOUS enquirers for a motor car, living within a 10 miles' radius of London, are afforded the opportunity of a free trial run, for the Gladiator Company, of 8 and 9, Long Acre, W.C., will send to the door of such one of their landaulettes. On receipt of a post card date will be arranged.

MRS. MANVILLE'S 35-h.p. Daimler car, on which she made the best time of the day in the speed tests in the Forstenreider Park, we learn was fitted with Collier tyres. The similar cars which gained second and fourth places were also equipped with Colliers.

RACES, RECORDS, AND TRIALS.

GLIDDEN TROPHY TOUR.—At Mount Washington Hotel, in the White Mountains. The tourists ready to start upon their return journey to New York.

Glidden Trophy.—As we briefly announced last week, this cup has been allotted to Percy P. Pierce, who drove a 28-32-h.p. Pierce-Arrow car, carrying four passengers. We say "allotted" advisedly, as, under the rules, at the conclusion of the tour, those owners whose cars have finished the tour and complied with the conditions, decide who, in their opinion, are the three competitors who have accomplished the best all-round touring performance. This information is used by the commission appointed under the rules in deciding the winner—a procedure which is certainly simple and as easy-going as anyone could wish for in a contest, although it is understood other factors were considered by Mr. Glidden and the commission, including selling price, seating capacity, weight, repairs made, and cost of running the cars. Twenty-two competitors were thus entitled to record 66 votes, and of these Pierce received the largest number, viz., 15. Those receiving first-class certificates are: Augustus Post (White), Ezra H. Fitch (White), Carl H. Paige (White), Walter C. White (White), W. N. Epping (White), Albert L. Pope (Pope-Toledo), Harold L. Pope (Pope-Tribune), C. E. Walker (Pope-Hartford), W. C. Temple (Pierce), Ralph S. Coburn (Maxwell), Benjamin Briscoe (Maxwell), George Otis Draper (Packard), John C. Kerrison (Cadillac), E. A. Gilmore (Rambler), S. B. Stevens (Darracq), Robert Lee Morrell (Locomobile), A. W. Church (Decauville), Julius Mehlig (Knox), E. H. Cutler (Knox), R. E. Olds (Reo), R. M. Owen (Reo). Those receiving second-class cer-

tificates are: Mrs. Joan Newton Cuneo (White), C. J. Edwards (Cadillac), C. W. Kelsey (Maxwell), and G. H. Tyrrell (White). On these were erased the words "registered according to conditions at all controls." Next year the cup tour is to be controlled by the A.A.A., and observers assigned to each car.

Skegness Sand Races.—The meeting organised by the Nottinghamshire A.C. for September 2nd will comprise eight racing events in addition to an Appearance Competition prior to the racing. For the Appearance Competition, cars are to line up on the Parade at 11 a.m., a gold and silver medal being offered as first and second prizes, and the programme for the tourist car events and the motor cycles will commence at 12.30 p.m. First and second prizes consisting of gold and silver medals are offered in each event, with the exception of Event H, in which the first prize will be a silver cup and the second a gold medal. The entrance fee for each race is 5s., entries closing on August 24th at 6 p.m. The actual times accomplished in the tourist events will not be published, but an order of merit will be given, similar to the Brighton races. The auto-cycle event is open only to standard touring machines, fully equipped for the road, cut-outs being prohibited. Each cycle must have a tank holding at least 1 gal. of petrol. Lieut.-Col. R. L. Birkin, D.S.O., will act as judge for the races, and Mr. Booth Granger has undertaken the secretarial portion of the meeting, to whom all applications for particulars

Mr. Luff Smith weighing in at Martley with his 12-h.p. Wolseley.

The cars "parked" at the bottom of the hill.

SHELSLEY WALSH HILL CLIMB.

and entries should be addressed at 10, Wheeler Gate, Nottingham. The events for tourist cars are as follow :—

One Mile Handicap Race (Event B).—Open to any type of car, owned by members of the Nottinghamshire, Leicestershire, Lincolnshire, and Derby and District Clubs.

Events open to Members of the A.C.G.B.I. and Affiliated Clubs.

One Mile Scratch Race (Event C).—For cars listed at not more than £200 complete, and to carry driver only.

One Mile Scratch Race (Event D).—For cars listed at not more than £350 complete. Cars costing not more than £250, to carry driver only; cars costing more than £250, to carry driver and one passenger.

One Mile Scratch Race (Event E).—Chassis price of which is not more than £500, and carry driver and one passenger.

One Mile Scratch Race (Event F).—Chassis price of which is not more than £700, and carry driver and one passenger.

One Mile Scratch Race (Event G).—Chassis price of which is over £700, and carry driver and one passenger.

One Mile Scratch Race (Event H).

One Mile Scratch Motor Cycle Race (Event J).—Limited cycles not more than 5-h.p.

Midland A. C. Hill Climb.—By the kindness of Mr. C. H. Taylor, who placed a very steep hill, situated on his private estate, Shelsley Walsh, at the disposal of the club, a very successful contest was run off on Saturday last, when out of thirty-eight starters thirty-five cars were timed at the top of the hill. The rise included about half a mile, with an average gradient of one in eight—a sufficiently severe test to mark the performances of the competing cars as meritorious. A silver cup for the car showing the best result under the handicap was presented by the club president, Mr. J. B. Dugdale, and another cup was given by Mr. H. C. Holder for the fastest time. Mr. G. F. Heath's 6-h.p. De Dion, driven by G. Patterson, secured the former, Mr. E. M. C. Instone, driving his 35-h.p. Daimler, winning the latter, with the time of 1 m. 17 $\frac{3}{4}$ s. The formula for horse-power by which the results were arrived at was as follows:—

$$H.P. = \frac{D^2 \times \sqrt{S} \times N}{5}$$

where D = cylinder bore (in) S = the stroke (in), and N = the number of cylinders. The results, according to the final formula, were as follows:—

Where the car was not driven by the entrant, the driver's name appears in brackets.

Place.	Car and Entrant.	H.P.	Time.	Points.
	h.p.		m. s.	
1	6 De Dion, G. F. Heath (G. Patterson) ...	4' 1	4 49 $\frac{1}{2}$	73
2	30 Daimler, Percy Martin (G. H. Street) ...	34' 45	1 29 $\frac{1}{2}$	84
3	35 Daimler, A. Birtwistle ...	40' 8	1 18 $\frac{1}{2}$	87
4	8-10 Humber, J. W. Adams (L. Coatelen) ...	12' 1	2 20 $\frac{1}{2}$	89
5	35 Daimler, E. M. C. Instone ...	40' 01	1 17 $\frac{1}{2}$	90
6	12 Wilson-Pil., W. G. Wilson (G. H. S. Slaney) ...	17' 44	2 52 $\frac{1}{2}$	92
7	12 Wolseley, G. D. Best ...	13' 85	3 8	92
8	20 Lanchester, G. H. Lanchester ...	18' 46	2 45 $\frac{1}{2}$	94
9	12 Wolseley, Wolseley Co. (S. Hands) ...	13' 85	3 22 $\frac{1}{2}$	95
10	8 Rover, E. W. Lewis (E. N. Greaves) ...	6' 92	3 31 $\frac{1}{2}$	96
11	12-14 Climax, J. Mayfield ...	14' 24	3 31	97
12	35 Daimler, Percy Martin ...	40' 01	1 29	97
13	8 Wolseley, A. E. Crowdy ...	10' 15	3 57 $\frac{1}{2}$	99
14	28 Daimler, A. D. Grigg ...	27' 1	2 18	99
15	16-20 Humber, T. C. Pullinger ...	19' 03	2 35	1'01
16	50 Itala, H. R. Pope ...	43' 9	1 30 $\frac{1}{2}$	1'01
17	12 Wolseley, H. Luff Smith ...	13' 85	3 42	1'02
18	16-20 Rover, E. W. Lewis ...	18' 25	2 1	1'03
19	24 F.I.A.T., A. D. Isaacs ...	35' 0	1 56	1'04
20	8 Wolseley, Mark Wild ...	10' 15	4 8	1'07
21	8-10 Mobile, L. Autweiler ...	8' 06	4 0 $\frac{1}{2}$	1'07
22	24 Beaufort, J. E. Lound (A. E. Oakley) ...	25' 65	2 27 $\frac{1}{2}$	1'08
23	10 Wolseley, P. D. Lee ...	13' 85	3 54	1'11
24	6 Wolseley, A. E. Pettifer ...	6' 92	4 8 $\frac{1}{2}$	1'11
25	6 Wolseley, A. E. Ansell ...	6' 92	4 18	1'11
26	8 $\frac{1}{2}$ Cadillac, F. S. Bennett ...	8' 55	4 59	1'12
27	6 Wolseley, A. A. Remington (Miss Larkins) ...	6' 92	4 27 $\frac{1}{2}$	1'14
28	16-20 Argyll, H. C. Ansell ...	16' 54	3 44 $\frac{1}{2}$	1'20
29	12 Wolseley, R. R. Brown ...	13' 85	4 7 $\frac{1}{2}$	1'21
30	10 De Dion, W. Guilding ...	8' 2	6 34 $\frac{1}{2}$	1'24
31	10 Allday, W. Allday (E. J. Blakemore) ...	9' 48	4 13	1'33
32	20-24 Argyll, W. H. Cook ...	1' 3	3 58 $\frac{1}{2}$	1'33
33	10-12 Argyll, R. S. Smallman ...	9' 9	6 4	1'37
34	28 Wolseley, Wolseley Co. (A. Callan) ...	52' 33	1 35 $\frac{1}{2}$	1'40
35	35 Beaufort, J. E. Lound (C. Lorenzen) ...	44' 0	2 6 $\frac{1}{2}$	1'46

Derby Hill Climb.—On Saturday, under the auspices of the Derby A.C., a hill climb took place near Derby. Mr. Francis Bolton made the best time with his Daimler, Mr. Crowshaw Wilson, also on a Daimler, coming within four seconds of him. A handicap then followed, in which cars were sent off in heats of two, a time interval between the starting of each car providing in many cases some fine and close finishes, although in most cases the first car off was the first car home. The

Miss Larkins with her 6-h.p. Wolseley.

Mr. Luff Smith waiting for his turn upon his 12-h.p. Wolseley.

SHELSLEY WALSH HILL CLIMB. AT THE START.

first heats resulted as follows: Mr. Pole-Gell, 15-h.p. Darracq, 34s. start, beat Mr. C. J. Allin, the hon. secretary, 8-h.p. Humber; Mr. Francis Bolton, 15-h.p. Ryknield, 1m. 51s. start, beat Mr. Mell, 15-h.p. Darracq; Mr. C. T. Leech, 18-h.p. Daimler, with 71s. start, won from Mr. Wilson's 28-h.p. Daimler; Mr. G. B. Fletcher, 9-h.p. Mohawk, 2m. 5s., beat Mr. Reading, 10-h.p. Wolseley; Mr. Francis Bolton's 30-h.p. Daimler beat Mr. Dawson's Humber tricar; Mr. C. H. Smith, on his Lagonda tricar, beat Mr. R. W. Sale, on his 7½-h.p. Wolseley, 4m. 23s. start.

In the final, Mr. Bolton's Ryknield proved successful, Mr. Leech being second, and Mr. Fletcher third. In the class for cycles Mr. Bolton's nephew, driving a Clement Garrard, with 2m. 6s. start, took first place, with Mr. F. Smith, Clyde cycle, scratch, second, and Mr. Fryer, 33s. start, third. Mr. Leech and Mr. Allin started and timed respectively, and Dr. R. J. Arundel judged the winners of the heats.

MESSRS. C. S. ROLLS AND Co. announce that they have taken up the sole selling agency of the Hallé spring wheel—of which a description appears in our columns this week—and, by way of inauguration, a set of the wheels, fitted on a 20-h.p. Wolseley car, are being put through a road trial of about 4,000 miles under the

auspices of the A.C.G.B.I. The test started on Tuesday last, and will continue for 25 days.

AN attempt is to be made officially under the auspices of the A.C.G.B.I. by Mr. S. F. Edge on his 6-cylinder Napier, to lower the flying kilom., the standing kilom., and the standing mile records. At first either the Filey Sands or the sands at Weston-Super-Mare were chosen for the test, but the latter Mr. Edge thinks quite unsuitable, and at the moment of writing no locality had been fixed for the try.

THE Mablethorpe Beach Races are taking place to-day, Saturday, under the joint auspices of the Mablethorpe Amusement Committee and the Lincolnshire A.C. The programme will be started at 1.30 p.m., the chief events being a standing start handicap of 1 kilom. to be run in heats, and a time start handicap over the same distance. A considerable number of entries have already been secured, sufficient to ensure an interesting meeting, and every effort has been made for the comfort and convenience of all those who pay a visit to Mablethorpe for the racing. The Great Northern Railway Company are running a special service of trains, and it is intimated that ample accommodation will be found at the "Book in Hand," Louth, and Eagle Hotels.

Mr. Percy Martin has a nasty skid on his Daimler.

The most exciting skid of the meet. The 50-h.p. Italia has a hair-raising experience at "Hairpin" Corner.

SHELSLEY WALSH HILL CLIMB. AT "HAIRPIN" CORNER.

Mr. E. M. C. Instone on his 35-h.p. Daimler, with which he secured the Holder Cup for best time.

The timekeeper's (Mr. T. H. Woollen) tent at the finishing point. Messrs. A. A. Rimington and C. P. Type, on the right, busy working out the results.

SHELSLEY WALSH HILL CLIMB.

Liege Automobile Meeting.—After the usual formal reception on Monday of last week, and the visit to the Exhibition, a hill-climb on the Crickions Hill (average gradient 1 in 12) over 1 kilom., with a standing start, was run off on Wednesday, the 9th, in ideal weather. Hemery and Wagner, both on Darracq cars, were again successful in their efforts, running within $\frac{3}{4}$ sec. of each other, Wagner being timed for 43 secs. and Hemery 43 $\frac{3}{4}$ secs. In the Voiturette Class, Wagner's time, also on a Darracq, was 56 secs.; Hemery secured the Government prize with a time of 52 $\frac{1}{4}$ sec. for the hill.

In the Tourist Vehicle Class, for motor bicycles under 50 kilogs., Fagard was first in 60 $\frac{3}{4}$ secs. Bicycles over 50 kilogs (1) Reulaux (Peugeot), 81 $\frac{1}{4}$ secs.

In the class for cars over 20,000 francs (1), Rochet-Schneider, 1m. 31 $\frac{3}{4}$ s.

Chassis 15,000 to 20,000 francs (1), Metallurgique, 1m. 35 $\frac{1}{4}$ s.

Chassis 10,000 to 15,000 francs (1), Metallurgique, 2m. 7 $\frac{3}{4}$ s.

Chassis 5,000 to 10,000 francs (1), Vivinus, 2m. 39 $\frac{3}{4}$ s.

Chassis less than 5,000 francs (1), Metallurgique, 3m. 39 $\frac{1}{4}$ s.

Closed vehicles (1), De Cosmo, 5m. 4 $\frac{1}{4}$ s.

After some gymkhana items on the 10th, the Circuit for Tourist Cars took place on the 11th. The distance was 128 kiloms., with very nearly as many sharp turns and twists—32 cars and 10 motor cycles took part. A novel rule, to which we drew attention some time ago, was introduced into this event. Each competitor had to select beforehand at what average speed he would cover the full distance, and his choice determined the class in which he was placed. The specified speed had to be maintained throughout, timekeepers at frequent intervals—4 to 5 kiloms.—checking each car as it passed. Any variation upon the declared speed was penalised by debiting one point per second of difference. The winners in the various categories were:—

Cat. 1. Vehicles electing to travel at 15 to 24 kiloms. per hour, E. Dernier (Vivinus).

Cat. 2. 25 to 29 kiloms., Baillot (De Dion).

Cat. 3. 30 to 34 kiloms., Reuleaux (Mecanique).

Cat. 4. 35 to 39 kiloms., Lamarche (Metallurgique).

Cat. 5. Over 40 kiloms., R. de Macar.

Cat. 6. Motor bicycles (1), Dewandre (Sarolea); (2), Germaine (Antoine); (3), Fagard (Sarolea).

Coupe de Liedekerke.—The contest for this Challenge Cup took place on Sunday at Dinant. The course was 102.74 kiloms., which was covered four times = Total, 410.96 kiloms. In addition to the Cup for speed, a Team Cup for regularity was offered. Both these fell to the Pipe cars, the times of the classed cars being as follows:—

1. Hautvast (18-h.p. Pipe), 6h. 51m. 12s.
2. Fischer (15-h.p. Vivinus), 6h. 56m. 12s.
3. De Caters (16-h.p. Metallurgique), 7h. 31m. $\frac{1}{4}$ s.
4. Wilhelm (16-h.p. Metallurgique), 7h. 20m. 51s.
5. Kuhling (15-h.p. Vivinus), 7h. 23m. 49s.
6. Jenatzy (18-h.p. Pipe), 7h. 28m. 26s.
7. Van de Poel (18-h.p. Pipe), 7h. 43m. 21s.
8. Coquard (18-h.p. Aries), 8h. 4m. 1s.

A pneumatic tyre trial is proposed in France as a big event for next year.

At the Detroit Races, last week, Barney Oldfield had a serious spill when racing against Webb Jay on the White steam car. Earl Kiser has also come to grief when racing the "Bullet" on the Glenville track, Cleveland.

MOUNT Ventoux Hill-Climb has been postponed from September 1st and 2nd until September 16th and 17th, so as not to clash with other fixtures, and to enable competitors, during the Brescia Automobile week, more readily to take part.

It is not anticipated that the heavy vehicle trials just concluded in France, under the auspices of the A.C.F., will be repeated annually, but every other year. Therefore 1907 will probably be the next date for these trials, and for 1906 in all probability a 5,000-kilom. run for tourist cars will be organised in France.

Pyrenees Cup.—This tour will be about 1,300 kiloms. in daily laps of 200 kiloms., the start and finish being at Toulouse, whilst the itinerary will include Carcassonne, Perpignan, Beziers, Foix, Luchon, Cauterets, Biarritz, and Pau. *En route*, at these main points, fêtes are to be organised. The cars will be divided into six classes, according to their selling price, whilst the maximum horse-power for any motor is limited to 50-h.p.

THE ARDENNES RACE.—By the Winner of the First Race.

Heath, 1904.

Baron De Crawhez, 1903.

Charles Jarrott, 1902.

ARDENNES RACE.—The three winners of this race in previous years.

THE Ardennes Race has, to my mind, always been *the* race of the year. The conditions under which it is run, and the fact that the spectators are able to follow the position of each car at any point of the circuit, gives an interest to the event which is missing in all the events in which controls are fixed.

Our party on this occasion was a small one, consisting of Mr. Harvey and Mr. Willie du Cros, on a 50-h.p. Panhard, and myself, on my 22-h.p. Crossley.

In order to save time, we crossed from Dover to Calais on the Friday night prior to the race, and there found the 50-h.p. Panhard awaiting us at one o'clock in the morning to take us on to Boulogne, where we were staying for the remainder of the night, and from which place we were leaving at six o'clock for our run through to Belgium.

My own car was at Boulogne, and, consequently, for

some reason best known to the other members of the party, it was decided that I had to drive the 50-h.p. Panhard from Calais to Boulogne. The generosity of this idea can be appreciated when I say that the night was inky black, and the car was provided with a tiny oil lamp which helped but to make the darkness more intense. I am not quite clear how we got to Boulogne, because it was quite impossible to see the road, but I believe that part of the journey was made cross-country. As an interesting sequel, we landed somewhere at the top of the town in a little square full of turnings, and it seemed impossible to get out of this square, do what we might, as every time we made the attempt we seemed to land back at the spot from which we started. However, daylight breaking gave us an idea of where we ought to be, and we eventually landed up at Bailey's Hotel, thankful that our troubles had been

Mr. Charles Jarrott taketh rest, &c.,
on his Crossley car.

Messrs. Jarrott and Du Cros. Bros.
on their way to the circuit.

A wayside stop. Mr. Willie Du Cros
mounts guard during refreshments.

DRIVING TO THE ARDENNES RACE.

no worse. At 7 o'clock we were off again for St. Hubert, as we intended to make the run through in one day.

I must confess that the road is not particularly alluring for anyone intending to go to the Ardennes by this route, because a considerable portion of it is very narrow and winding.

Montreul, Hesdin, Mt. of Peronne, Hersan, Mezieres, Sedan, and on to the frontier, the passage being made easy by the aid of the papers obtained from the Automobile Club. Then a magnificent run over the Ardennes roads saw us landed safely in St. Hubert before dark—over 400 kiloms.—without a hitch of any description.

My Crossley was running perfectly, and on the straight stretches was averaging 60 kiloms. an hour comfortably, consequently the waits considerably made by the Panhard were not of very long duration.

St. Hubert saw us in the midst of the Panhard crowd. It was rather pleasant to meet once again some of the old racing brigade, who had retired from the heat of the fight, and had come to participate as spectators in a sport in which previously they had played a prominent part.

Amongst others at the hotel were the Chevalier René de Knyff, M. Lemoine, M. Prevost, Comte de Vogué,

of us from England over to see the event, namely, our own party, Mr. Kerr Seymour, that good sportsman and a friend of René de Knyff, and H. T. Arnott. It is certainly surprising that with the easy facilities for getting to the event that more of our sporting English automobilists did not turn up to see the great speed race of the year.

Everybody who is anybody was at Bastogne; cars of all sizes, makes, and conditions were running about in all directions, and the chances of the various competitors were eagerly discussed. I had a chat with the Baron de Caters, and was considerably surprised to hear that he had decided to start in the race, as he had been suffering from gout for some time past, and looked sufficiently ill as to make one doubt his capability of going through. However, he had made up his mind that he would attempt the race, and the only thing we could do was to wish him the best of luck.

Jenatzy appeared on his car, looking as demoniacal as usual, belching forth black smoke, and, in fact, most of the drivers in the race on the following day were to be seen either on or off their cars.

3.30 on the following morning saw us up and off to the start at Bastogne, 26 kiloms. from St. Hubert. On

Messrs. Charles Jarrott and Wm. Du Cros, Jun.

Messrs. Harvey and Willie Du Cros, with their *mechanicien*, watching the race.

Mr. Des Landes, Messrs. Du Cros Bros.' Paris Manager, discusses chances with Mr. Harvey Du Cros, Jun.

DRIVING TO THE ARDENNES RACE.

who had such a narrow escape when the Panhard boat sank which he was driving in the Monaco races; Teste and his faithful *mechanicien*, Artois; Tart, and Leblon, who was making his *debut* on a Panhard in the race. The hotel was full when we arrived there, and I was accommodated with a room by one of the villagers, spotlessly clean, and overlooking a breadth of forest of pine trees and open country spread out in a gloriously coloured panorama.

The excellence of the food served at the hotel was explained when I was informed that *chefs* from Paris had been specially engaged by the Panhard firm for the special preparation of food for the guests of the firm.

On the Sunday, a run round the course to Bastogne gave one an idea of the splendid arrangements which had been made by the Belgium Club for the event. No race has ever been run on a better course. It was certainly in a finer condition than any racecourse I have yet seen. The dust-laying preparations had been spread with a liberal hand, and everything had been done to secure the safety of the drivers and the spectators. The surface was beautifully smooth, and it was easy to anticipate that a battle royal at a big speed would take place.

Bastogne itself was full of people, and here I may mention as a point of interest that there were only five

this occasion, instead of having the start actually in the village of Bastogne, it was arranged at the foot of the long hill just before the village. The stand was built right across the road in the same way as the stand in Ireland, and gave the occupants an excellent chance of seeing the cars dash by beneath them.

The first car along the line was the C.G.V., driven by Behr. The timekeeper gave the signal to go, and immediately he raced the engine and dropped in the clutch. The car, instead of shooting forward, seemed to rise in the air and fall on its four wheels with a crash. Something in the gear had broken, and the car had to be dragged ignominiously off the course—to use an Irishism—finished before it had started.

All the other cars went away in excellent style.

In our opinion Gabriel made the best showing to the top of the hill, closely followed by Wagner and Jenatzy. 120 kiloms to go, and we calculated that the first car, *i.e.*, Hemery, would be round in about an hour and 15 minutes. To say that astonishment was caused by his appearance in 1 hour 5 mins. is to express one's self mildly. Everybody appeared to be stupefied, and the excitement was intense. We realised that the race was going to be fought out to a bitter finish, and that at a terrific speed.

Passing through Pironne on the way to the Ardennes. Mr. Jarrott on his 18-h.p. Crossley, and Messrs. Du Cros on their 50-h.p. Panhard.

Outside the Hotel Beiron, Rochefort.

The Panhard Control at Neufchateau. M. Rene de Knyff is at the end of the group of three.

DRIVING TO THE ARDENNES RACE.

Jenatzy came down the hill like a shot out of a gun, and caused a sensation with the manner in which he disappeared under the stand placed across the road.

Rougier, on the De Dietrich, was also going magnificently, and it eventually turned out that he accomplished the fastest circuit in the race—1 hr. 4 mins. for 120 kiloms. After the cars had passed we made our way back to our cars, and cut across country to Neufchateau, where there was a big De Dietrich, Panhard, and Darracq depôt. We arrived just in time to see Heath arrive for replenishment of petrol, lubricating oil, &c., and here we were able to appreciate one of the smartest pieces of work I have ever witnessed in this direction. From the time the car was stationary to the time it was started again was exactly 1 min. 25 secs. In that time the petrol tank had been refilled, lubricating tank had been also replenished, the driver had been given food, and the car had been generally looked over.

Teste arrived just before Heath got away, and he was sent off in even quicker time, namely, 1m. 18s., so that on this particular point undoubtedly the Panhard gained considerable advantage for their smartness. The story of the drivers, however, was that of continual tyre troubles; in fact, the story of the race on the part of every driver was the trouble he had had in connection with his pneumatics.

Leblon had three punctures in the first round, a small indication of the manner in which he must have driven to have finished in third position; in fact, as far as one could gather, the whole question now—owing to the power of the cars utilised in racing—appears to be one

entirely of tyres, the man having the best luck in this direction being the winner. I have no doubt that Hemery had a big advantage in this direction with his light Darracq, especially in view of the fact that Tart on the last round at Neufchateau was only one minute behind him, and had been gaining ground rapidly. It is reasonable to suppose that if Tart had not been so unfortunate as to have punctured again in the last few kilometers that he would have overhauled Hemery and been the winner of the race.

Teste was making excellent time, but only at one period did he appear at all dangerous.

The Baron de Türckheim said he had received news of Gabriel, and whilst he was talking to me Gabriel appeared with his mechanicien, having smashed up his car at St. Hubert. The accident was due entirely to himself through endeavouring to take a corner too fast. His description of the accident was somewhat graphic, and he explained that he was flung out of the car into a hedge, and saw something black passing over him which afterwards turned out to be the car, which was smashed to fragments—giving a slight indication of the very narrow escape he had. His mechanicien appeared particularly joyful at having escaped with his life, and in a corner of the tent was performing a little step-dance to show that he was sound in body and uninjured. However, both of them felt the effects of the smash, and before I left were lying down in the tent somewhat subdued and rather stiff and sore.

Rougier on his De Dietrich, we heard, had broken his clutch-pedal, a very small thing but impossible to repair,

At the Panhard Control. Baron Henri de Rothschild and Ch. Rene de Knyff watching Heath's "quick change." Gabriel, none the worse for his accident, is also interested. His gaitered leg can just be seen beyond M. de Knyff.

Wagner filling up at the Darracq Control.

Heath's "quick change" in the Panhard Control. In 1 min. 35 secs. he replenished with 100 litres of petrol, 10 litres of lubricating oil, refilled with water, and both he and his mechanicien had a record "quick lunch."

AT THE ARDENNES RACE.

and his magnificent dash in the first two laps was rendered quite useless.

Duray was travelling well, but had a lot of trouble with his tyres; in fact, as I have before mentioned, it was a tale of tyre troubles all the way through.

Jenatzy on his Mercedes, punctured, and endeavouring to reach the next control on a flat tyre, hammered up his rim to such an extent that it was impossible to fit a new cover. He had travelled well, and completed the first circuit in 1h. 6m.

A dash back from Neufchateau to Bastogne for the finish gave us a chance of trying the paces of the "50" over a portion of the old racing course which I know so well from my 1902 race. With a four-seated body and four up, we clocked 32 secs. for the kilom., and the 26 kiloms. were accomplished in 19m.

Close on behind our heels came de Knyff on the spare racing car, considerably anxious as to the result.

The question was, Who would arrive first, Hemery or Tart?

We did not know then that Tart was to have tyre troubles in the last 60 kiloms. After a wait of ten minutes, the bugle was heard, and a grand piece of racing was witnessed. Hemery, finishing, was being chased six inches away by Leblon just starting on his last round, he having started last and Hemery having started second.

The two cars crossed the tape practically locked together, travelling at a speed of over 90 miles an hour, and the effect was thrilling.

The next question was as to whether Tart would finish within the time limit, and thus beat Hemery. Exactly half an hour had to elapse after Hemery finished, in which time, if Tart had finished, he would have been the actual winner of the race, but he did not arrive and time went on, and as we stood with stop-watches in our hands, everyone was feverishly excited as to what would result. However, he did not appear, and Hemery won one of the hardest fought races on record at an average speed of over 62 miles an hour.

A great race worth travelling a long way to see.

Tart eventually finished in 6h. 13m., with Leblon, who had driven a very fine race in view of the troubles he had had with his tyres, in 6h. 22m.

Heath, who last year won the event in 6½ hours, only finished fifth, although he beat his last year's time by over 6m.

Immediately after the race we started back for the coast, the Crossley being allowed a little start. After a splendid run without incident, we were successful in making Hersan the same evening, and up early the following morning saw us in Boulogne at three o'clock in the afternoon, enabling us to be back in London on the evening of the day following the race.

It is always very interesting to me to go over to the Ardennes, as evidently the fact of having won the first race has apparently turned me into a local character. Certainly a great many more people knew me than I myself knew, but this made everything the more pleasant, and I only hope that interest in racing will secure a perpetuity of a race over a course which is, as at present arranged, the finest racing course in the world.

It is very interesting to notice in connection with the Ardennes the growth of speed.

In 1902, my own average was 53 miles an hour; in 1903, when the race was won by the Baron de Crawhez, 54 miles an hour; in 1904, when Heath was the winner, there was an average of over 57 miles an hour; and in 1905, Hemery put up the astounding performance of averaging 62 miles an hour; and one is almost compelled to ask the question—when will increase of speed cease?




L'ENTENTE CORDIALE.—The French naval officers leaving the Grand Hotel, Northumberland Avenue, on motor cars on Sunday last for their trip to Maidenhead. The view was secured from the Victoria Hotel.

Questions in the House.—Mr. Channing, who is one of the less important members of the virulent anti-motorist phalanx in the House of Commons has been asking the President of the Local Government Board whether the reference to the Motor Car Royal Commission would include inquiry into the increased wear and tear caused to the roads by motors, and the cost to the rates, &c., of the extra police required "to better enforce the law," and whether he would address a circular letter to local authorities asking for statistics on these points. Mr. G. Balfour's reply was short and to the point:—That the terms of reference were sufficiently wide, and that it rested with the Commission to decide what information they will ask for. Mr. Channing also similarly questioned the Chancellor of the Exchequer, merely adding a query as to the approximate cost involved. In reply, Mr. A. Chamberlain refused in any way to anticipate the Budget for next year.

with the numerous cars which are on view prior to the periodic sales, two of which are held every week.

The new premises, of which our photographs give some idea, are among the most elaborate of their kind which we have seen, and the ornate decoration with which the interior is finished, and the convenience of the general arrangement of the building itself, are a welcome change to what is generally associated with the popular idea of an auction showroom. A feature worthy of comment is the flooring of this new building, which is constructed of an asbestos compound, one inch in thickness—a precaution against fire which will be easily appreciated.

While there are always a large selection of high-class cars on view, it occasionally happens that what might almost be termed historic vehicles are included among them. On the occasion of a recent visit, for instance, we noticed an 80-h.p. Mors, now fitted with handsome touring body, formerly the property of the Duke of Manchester—who has personally attended at these sales—but better known when, as a racing car, it was driven by the Hon. C. S. Rolls. Another Mors, at one time owned by Baron de Caters—who is almost as well known on this side of the Channel as on his own—was also in this incongruous but catholic collection of motor vehicles, both new and old, which range in power from some diminutive voiturette of almost forgotten make to the latest production of the Mercedes factory in the shape of a brand new 60-h.p. chassis.

A MOTOR AUCTION ESTABLISHMENT.—Outside view of the new premises of The Motor House in Euston Road.

Second-Hand Cars.—To many motorists their first really practical experience of the art of motoring as a pastime, came with the purchase of a second-hand car. It is, perhaps, of all ways, the most direct and the most certain in which to learn the broader meaning of the term "motorist," and if, perchance, the tales of those who entered the ranks by this door are not untinged with woe, there are, nevertheless, very few who are ever heard to express regret at having followed such a very time-honoured custom. Now-a-days, the pastime has assumed such proportions, and the fancies of the wealthy vary with such rapidity, that in many instances there is very little difference between a second-hand car and the brand-new article but the price.

One of the best possible indications of the growth of automobilism may be found in the magnitude of the businesses connected, either solely or in part, with the sale of second-hand cars. Among these that conducted at the Motor House, under the management of Mr. Easton, is unquestionably one of the largest and most varied in the world. To such an extent has their business increased that they have just opened most extensive premises—almost adjoining their original showrooms in Euston Road—exclusively for four-cylinder cars. Together with the old site the floor space is almost one acre in area, but even this always appears to be comfortably crowded

ONE of the daily papers has signalled itself by producing the following cutting:—

Mr. Edison states that his storage battery, which he has now perfected, will drive a 2-ton truck at the rate of 33 miles an hour, at a cost of 58 per cent. of the sum necessary to maintain a horse. The battery will enable an automobile, under favourable conditions, to run 150 miles on one charge. Mr. Edison is building an immense factory wherein to manufacture the batteries.

We have heard so little about the Edison battery lately that this is positively refreshing. We only trust that it is not a paragraph that was written out during the original boom, pigeon-holed at the time, and recently dug up by a rummaging sub-editor.

Interior view of one of the extensive rooms in the new premises of The Motor House.

company, a 20-seated Arrol-Johnston char-a-banc having been selected for the purpose.

LOYAL fears for the safety of His Majesty have been aroused in the hearts of the subjects of the King of Siam by that monarch's enthusiastic addiction to automobilism, and his ministers have accordingly petitioned him to refrain from that "risky" mode of locomotion. The King, however, has evidently the profoundest faith in the reliability of his cars, as he has replied that "Danger lieth not in the motors, but in the hearts of men!"

Bank Lane, Kingston-on-Thames, the first road to be closed in England to motor vehicles under the powers of the Local Government Board. Notice has been issued by the L.G.B. that a "person shall not drive a motor car on the highway within the Borough of Kingston-on-Thames, which consists of the street known as Bank Lane." The Order comes into force on August 28th. Bank Lane leads out of Lower Ham Road, at which point our view is taken.

THE Automobile Club of Milan has been invited by the Italian War Minister to furnish a number of automobiles to take part in the military manoeuvres, to be held in Abruzzi, in the presence of the King, on the 23rd and 24th inst. Fourteen members of the club have offered to place cars at the Minister's disposal.

THE Postmaster-General reports that he has considerably extended the employment of automobile transport by the G.P.O. In addition to the services to which we have already referred, others have been established between Birmingham and Worcester, Newcastle and Sunderland, and Northampton and Hitchin. The employment of the motor vans has resulted in acceleration of the services, and where heavy loads are carried, in substantial economy.

THE leading members of English society are certainly now giving the most satisfactory preference to the British-built car, and if any confirmation of this statement is required it is provided by recent experiences at the show rooms of Messrs. S. F. Edge, Limited. Within a short period, Prince Arthur of Connaught has purchased both a two-cylinder and four-cylinder car, while in a single afternoon orders were received from H.R.H. the Duke of Connaught for a six-cylinder car (H.R.H. was the purchaser of the first car of this build which the Napier firm produced), from the Speaker of the House of Commons who ordered an 18-h.p. landaulette, and from Lady de Grey, who gave a similar order, while Lord de Ramsey within a few months has purchased both a 24-h.p. and a six-cylinder Napier car.

NEW CUMNOCK, Ayrshire, has now a motor car service instituted by a local

THERE is a great difference between the meaning of the words "axis" and "axle," but the difference has not been "revealed unto" a certain coloured preacher in America, who having learned that the earth "revolves on its axis," has jumped to the conclusion that the oil-wells, which supply the citizens of the United States with fuel for motor cars, and punishing objectionable negroes, were designed by the "Author of the Universe" for oiling the earth's axle (or axis). Motor cars, the coloured preacher thinks, have been using up all the supply of natural oil, and hence the earth's axle (or axis) creaks, a state of affairs which gives rise to earthquakes. Perhaps if some kind person would explain to the "coloured preacher" that the axis (or axle) turns round with the earth he would realise that lubrication is not needed, and be reconciled to the arrangement as an example of the divine government of the universe and a proof of design in Nature!

A FIVE-MILE per hour speed limit upon motor cars, when travelling through Middle Street, Horsham, has been announced by the Local Government Board. The Order takes effect from September 4th next.

THE CLOSING OF BANK LANE, KINGSTON, TO MOTOR CAR TRAFFIC.—Lower Ham Road, showing Bank Lane leading out on the right. This lane is about 190 yards long, is about 16 feet wide where it joins with Lower Ham Road, and narrows in the centre to about 13 feet. From the centre of the lane, a wide residential road comes in at right angles.

NEW COMPANIES REGISTERED.

Automobiles Corre (Limited).—Capital, £40,000 in £1 shares (26,000 six per cent. preference). Object, to acquire the business of Jean Corre, 37, Rue de Villiers, Neuilly-sur-Seine. First directors, P. Baxter (chairman) and J. Corre.

D. Doyle (Limited).—Capital, £2,000 in £1 shares. Object, to adopt an agreement with D. Doyle, of Nelscn House, 9, Charing Cross Road, W.C., and to manufacture and deal in electric, petrol, oil, gas, and other cars, coaches, &c. First director, D. Doyle (managing director).

Oliver, Morris, and Ball (Limited), Grosvenor Works, Mount Ephraim, Tunbridge Wells.—Capital, £25,000 in 10,000 "A" preference and 14,500 "B" preference shares of £1 each and 10,000 ordinary shares of 1s. each. Object, to acquire Messrs. Oliver and Morris's carriage building business, Grosvenor Works, Mount Ephraim, Tunbridge Wells, and to carry on the business of coachbuilders, dealers in motor cars, &c. First directors, A. Oliver, G. Morris, and E. B. Ball.

W. G. Haywood and Company (Limited), 56, High Street, Bloomsbury, W.C.—Capital, £2,500 in £1 shares. Object, to acquire from W. G. Haywood and Co. the sole retail agency in Great Britain and Ireland for the sale of motors and motor cycles manufactured by V. Antoine Fils et Cie, of Liège, Belgium. First directors, W. G. Haywood and S. G. Brounger.

Howard T. Wright Brothers (Limited).—Capital, £10,000 in £1 shares (7,500 preference). Object, to acquire from H. T. Wright an invention of a method of driving turbines by gas or hot air. First directors, H. C. Walker, H. T. Wright, and J. B. Nicholson.

Motor-Bus Advertising Company (Limited), Bright's Buildings, 110, John Bright Street, Birmingham.—Capital, £2,500 in £1 shares. Object, to acquire the leases of advertising right on the motor-omnibuses belonging to the London Motor-Omnibus Company (Limited), as granted by the company to A. Fletcher, of Birmingham. First directors, A. Fletcher (managing director), F. Mason, and E. W. Beech.



A SNAP AT BLACKPOOL RACES.—Miss Dorothy Levitt, in the midst of the racing, is keenly alive to the absorbing interest of "The Automotor Journal."

ILLUSTRATION, next to demonstration, is the surest means of explanation, and so far as this means can be made useful, it has been by the well got-up little booklet on tyre repair which is issued by the Continental Tyre Company. There are no less than twenty-four views, illustrating the various operations in changing an inner tube or cover, and to anyone who is unfamiliar with the process they should be invaluable, while to many who consider their doubtless rev

We are informed that the Receiver and Manager of the Motor Manufacturing Company has sold the motor car works at Coventry known as the Motor Mills, together with a portion of the machinery, to the Daimler Motor Company, and is taking new works, where the M.M.C. business will be carried on as heretofore. Progressive possession will be given to the Daimler Company to enable the M.M.C. business and completion of the orders in hand to be carried on without interruption, pending the installation of the M.M.C. business in their new works.

To obtain the grant of a Royal Warrant of appointment as Motor Manufacturers is no mean achievement at the present time. Messrs. John L. Thornycroft and Co., Ltd., have succeeded in this difficult task, after having supplied the above fine specimen of a motor carriage to H.R.H. Princess Christian. In recognition of her pleasure with her acquisition, H.R.H. honoured the Company with her official recognition in this manner.

BRITISH EXPORTS AND IMPORTS OF MOTOR CARS, &c., FOR 1905.

1905.	Exports, British and Irish make.						Foreign and Colonial Re-exportation.					
	No. of Cars and Value.		Parts Value.	No. of Motor Cycles and Value.		Parts Value.	No. of Cars and Value.		Parts Value.	No. of Cycles and Value.		Parts Value.
		£	£		£	£		£	£		£	£
January ...	77	25,590	7,480	58	2,026	673	50	19,006	2,733	8	214	138
February ...	62	20,209	6,335	63	2,389	1,003	79	39,772	4,532	2	54	52
March ...	49	14,749	7,862	46	1,471	1,024	36	20,783	3,440	14	290	55
April ...	55	16,590	9,635	46	1,459	608	38	19,697	7,885	8	369	59
May ...	55	15,670	10,014	60	2,181	1,803	17	8,572	3,270	1	60	40
June ...	59	16,797	13,239	83	2,286	1,293	20	11,491	2,815	17	512	109
July ...	59	23,295	8,314	52	1,791	1,000	50	15,419	2,479	6	177	61
Total ...	416	132,900	62,879	408	13,603	7,404	290	134,740	27,154	56	1,676	514

NOTE.—For 1904 comparative figures see full table for the year in our issue for January 21st, page 91.

Imports.

1905.	No. of Cars and Value.		Parts Value.	No. of Motor Cycles and Value.		Parts Value.
		£	£		£	£
January ...	362	149,578	36,608	57	1,842	905
February ...	431	195,978	56,773	102	3,748	1,957
March ...	560	239,091	75,463	152	5,369	2,721
April ...	544	225,012	68,891	192	6,477	2,087
May ...	728	327,008	77,801	280	8,274	2,947
June ...	557	259,359	53,362	211	6,581	2,201
July ...	675	277,738	71,968	212	6,931	2,178
Total ..	3,857	1,673,764	440,866	1,206	39,222	14,996

THE British Empire Motor Trades Alliance has received an enquiry for the names and addresses of British firms who manufacture chassis, pressed steel or armoured wood, wheel base about 7 ft. 6 in., Cardan drive, three speeds and reverse, direct drive on top speed, artillery wheels 30 ins. by 3½ ins. (750 × 85), for tonneau body, four seats, 10-12-h.p. 4-cylinder engine, with tank, coil, accumulators, radiator, etc., or engine separate.

THE Dorking Motor Garage has been established at 64A, South Street, by Mr. Cecil J. Tracy. Motoring visitors have increased in Dorking of late, the exquisite country abounding in the vicinity attracting daily more and more lovers of Nature's beauties. The garage is on the main road to Horsham, Worthing, and Eastbourne, and is next door to the General Post Office at Dorking. Accommodation is afforded for about 40 cars, and ample provision has been made for rapid repairs. Accumulator re-charging is a feature, and petrol, lubricating oils, tyres, and accessories of all kinds are stocked. The agency for the Crypto car has, we understand, been secured by Mr. Tracy.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

9136. 1st May, 1905. Improvements in or relating to the Clutch Mechanism and Reversing Gear of Motor Vehicles. Georges Ville, 23, Rue Jenner, Paris. Date under International Convention, 5th May, 1904. This apparatus relates to apparatus for controlling the clutch mechanism and the reversing gear of motor vehicles by the combined use of a pedal and a hand lever. There are two figures. Fig. 1 is a longitudinal elevation with sections through the essential parts. The pedal, *b*, arranged on the spindle, *a*, acts on the one hand by means of an arm with a roller, *c*, on a fork, *d*, for shifting the clutch cone, *e*, co-operating with the flywheel, *v*, of the engine, and by means of a second

pivoted at a fixed point to the case, *g*, containing the change-speed gear, the fork, *d*, having rollers acting against a collar secured to the coupling cone, *e*. Through this fork passes an adjustable screw, *o*, secured to a plate, *s*, against which rests the roller of the arm *c*, controlled by the pedal, *b*. The fork is connected above the screw, *o*, to a rod, *t*, terminating at the opposite end in a link, *u*, arranged transversely on the spindle, passing through the spindle, *a*, and secured to another lever, *y*, arranged outside the lever, *b*. This lever, *y*, is intended to effect or to maintain for a certain length of time the unclutching of the motor, and when it is caused to swing to the end of its movement it also acts on the brake. The spindle of the lever, *y*, is secured to a cam, *z*, acting by its boss on a projection secured to the link, *u*. The sleeve of the cam, *z*, carries an arm, *a*¹, to which is connected the rod, *w*, of the band brake, *b*¹, acting on a drum, *c*¹, of the transmission gear. When it is desired to obtain instantaneous throwing out of gear or reversing it is merely necessary to push the pedal, *b*, and accor-

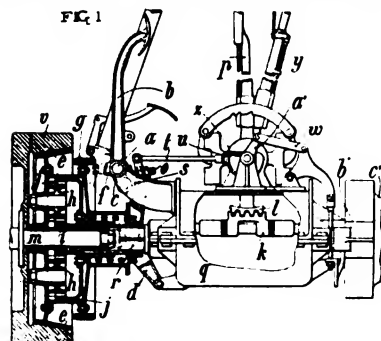
fabriks Aktiengesellschaft, Budapest, Hungary. Date under International Convention, 25th July, 1903. Friction clutches, as hitherto constructed, which transmit power by means of spiral springs only permit, when but a single spring is employed, of the rotation of the shaft in one direction, whilst in accordance with this invention, even if only one spiral spring is employed, the shaft may be rotated in both directions in exactly the same manner. The transmission of the power takes place by friction which is produced upon the inner or the outer face respectively of a spiral spring arranged between the two clutch members. There are six figures. In Figures 1 and 2 the clutch member, A, is turned conically internally, whilst the clutch member, B, is of cylindrical form. The spiral spring, C, bearing upon the periphery of the cylindrical clutch member, B, is conical upon the outer periphery, but is not rigidly connected to the member, B. The two ends of the spiral spring rest against the stops, *k* and *n*, forced on the clutch member, B, in such a manner that it is able to slide or become compressed or extended by the amount of play afforded by the stops. Between the inner face of the spiral spring and the outer cylindrical periphery of the clutch member, B, there is but very slight play. The clutch member, B, is displaceably mounted upon the shaft, but rotates with the latter, whilst the part, A, is mounted fast upon the shaft. By displacing the clutch member, B, in the left hand direction, the spiral spring comes into contact with the inner face of A, and friction is set up between the former and the clutch member, A, so that both the spiral spring and the plate, B, are driven, the latter, by means of the stops, *k* and *n*, according to the direction of rotation of A.—July 27th, 1905.

Patent Specifications Published.

Applied for in 1904.

Published August 3rd, 1905.

- 19,579. A. F. MAUDEN. Motor vehicles.
 19,739. A. KENRICK. Speed gear.
 19,751. J. S. RAWORTH. Motor vehicles.
 23,319. G. PILKINGTON. Motor cycles.
 24,164. SOC. DE CAMIONS AUTOMOBILES MOTEURS DUFOUR. Explosion motors.



The Automotor Journal, August 26th, 1905.

THE AUTOMOTOR JOURNAL

A RECORD AND REVIEW OF APPLIED AUTOMATIC LOCOMOTION.

Circulates amongst Makers and Users of Motor Cars, Cycles, etc., in the United Kingdom, the Colonies, and the Continent.

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LUCERNE LAKE MOTOR BOAT RACES, AUG. 19-21.—The Lake at Lucerne, seen from the Switzerhof.

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NOTICE.—Advertisement instructions should reach the office, 44, St. Martin's Lane, W.C., by first post, Wednesday. The latest time for receiving small alterations for Advertisements is 12 noon, Wednesday. No alterations can be made after that hour.

DIARY OF FORTHCOMING EVENTS.

British Events.

1905.		
Aug. 26	...	Inter-Team Trial (Motor Cycling Club).
Sept. 2	...	Skegness Races on Sands (Notts A.C.).
Sept. 2	...	Auto Cycle Club, Consumption Trial.
Sept. 4-5	...	Saltburn-on-Sea Sand Races.
Sept. 9	...	Brown Cup (Motor Cycling Club).
Sept. 14	...	*Tourist Trophy (Isle of Man).
Sept. 15	...	*Daily Graphic Cup (Isle of Man).
Sept. 20	...	Motor Boat Burnham-on-Crouch (B.M.B.C.).
Sept. 18	...	*Van Trials.
Sept. 23	...	Scottish A.C. Hill Climb.
Sept. 30	...	Auto Cycle Club Race Meeting, Crystal Palace.
Oct. 4	...	*Speed Trials.
Oct. 7	...	Scottish A.C. 100 Miles Run.
Oct. 14	...	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17	...	*Quarterly 100 Miles Trials.
Nov. 17-25	...	Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.		
Sept. 1	...	Lake Geneva Motor Boat Meeting.
Sept. 2-10	...	Brescia Automobile Meeting.
Sept. 10	...	Tri-Car Competition (L'Auto).
Sept. 10	...	Vincenzo-Florio Cup.
Sept. ...	...	Tourist Car Trial (A. C. de France).
Sept. 3-10	...	Rouan Meeting.
Sept. 11	...	British International Cup (Motor Boats Arcachon).
Sept. 16-17	...	Ventoux Hill Climb.
Sept. 19	...	1/2 Litre Consumption Trials (Motor Cycles).
Sept.	...	Motor Bicycle Race (French Ardennes).
Oct. ...	...	Vanderbilt Cup.
Oct. 1	...	Chateau Thierry Hill Climb.
Oct. 15	...	Gaillon Hill Climb.

Automobile Club of Great Britain and Ireland Events and Papers.

"The Automotor Journal" can be obtained from all Messrs. W. H. Smith & Sons, and Messrs. Willing & Co.'s Bookstalls. All Railway Stations throughout France, and at

AIX-LA-CHAPELLE, J. A. Mayer, Eisenbrunnen.
AIX-LES-BAINS, A. Gerenté, 32 Rue de Genève, and F. Mabboux, Place du Revard.
BADEN BADEN, Otto Ryssel, 42 Lange Strasse.
BALE, F. Festeren, Librairie.
BERLIN, Ilges, Passage Unter den Linden, and Railway Bookstall.
BERNE, Schmid & Francke.

PARIS OFFICE, F. Tennant Pain, 8 Rue Favart; Galignani's Library, 224 Rue de Rivoli; Librairie Timotie, 14 Rue Castiglione; Librairie Byron; 8 Rue Castiglione; Librairie Shakespeare, Avenue des Champs Elysées; Librairie Celtic, Rue Marboeuf; Librairie Anglaise, Avenue Victor Hugo, the Kiosques at the Nord, Lyons (P. L. M.), and St. Lazare Termini; and at the principal Kiosques on the Boulevards.

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PASSING EVENTS.

Drivers' Training Schools—A Right Move.

THE situation as regards the supply of competent motor car drivers is becoming more and more acute, not to say absurd. While good and competent chauffeurs are at a premium, and almost unprocurable, incompetents whose only qualification for the post they desire to fill is that same desire to fill it, are as plentiful as blackberries in autumn, leaves in Valombrosa, or winks at a Sunday School treat. A sad example of this is provided by the case of a correspondent who recently advertised for a chauffeur. He had some seventy replies, but amongst them not one that any car-owner with an affection for his car, or respect for the safety of the public would have thought of engaging. The seventy were composed of two approximately equal battalions—boys just old enough to be granted a licence, and elderly incompetents whose doubtful eyesight could scarcely have been relied on to distinguish a policeman from a "road hog." They were the output, of course, of some of the many so-called training institutes for chauffeurs, on whose delinquencies it has been our duty to comment from time to time.

Now this driving-school business is becoming a very serious matter. There is plenty of room for really *bona*

fide institutes of the sort which would turn out trusty and reliable drivers whose certificates could be depended upon. Too many of them, alas, as has been pointed out in our columns, and in other papers, are little better than traps for the unwary aspirants to drivership who pay fees they can ill afford, to learn nothing or less than nothing, and traps for employers who may be beguiled into employing the incompetents these fraudulent institutions turn out. At the same time, there are teaching institutes which do really good work and benefit the automobile community. The great thing is that it should be possible to distinguish the sheep from the goats, and the Motor Union are, therefore, to be heartily congratulated on having determined to prepare a "recommended list" of schools, firms, and institutions, undertaking the training of motor car drivers. Any institutions that desire to be placed on this list should communicate with the secretary of the Union, giving full particulars, and the Union will then make such enquiries as will enable them to decide whether the institute in question should be placed upon their list. The value of such a list is obvious. Intending learners will be sure that in becoming members of one of those whose names appear upon it they will be getting value for their money, and employers will feel some degree of confidence that in trusting their automobiles to the *alumni* of such institutions there will be no danger of the milestones in their immediate neighbourhood becoming embellished with their principal constituent parts.

The Light Delivery Vans Trials.

THE reliability trial for light motor delivery vans, which are to extend over five weeks during the months of September and October, and are now officially announced to commence on the 16th of next month, have not been an unmitigated success as regards the number of competitors who have entered vehicles for it. We confess we are largely disappointed. The motor delivery van promises to form one of the most important and generally useful branches of the automobile industry, and yet, when the Automobile Club organises an elaborate trial which will be carried out through twenty-three different counties, and so present a unique opportunity to the competitors of showing what their vans can do to a widely-distributed circle of spectators, the number of entrants is practically insignificant. To some extent this is no doubt due, as pointed out by Mr. Frederic Coleman (in a letter which we have received from him), to the fact that the trials follow much too closely on the heels of the Tourist Trophy in the Isle of Man, a circumstance which makes it difficult for firms to enter for both events unless they possess an enormous, and for ordinary purposes a somewhat superfluous, staff, and also to the frequent alterations of date of which the event has been the victim. This is decidedly bad stage-management. Similar reasons, it has been stated, account for the absence of Messrs. Thornycroft from the competition. Considering that of the actual entries several are by foreign manufacturers, the result is not calculated to produce a very favourable impression of British manufacturing enterprise, and the actual state of development of British commercial vehicles, since the general public can hardly be expected to take the special circumstances of the case into account. In fact, the false impression is likely to gain ground that the lead held by Great Britain in this department has become a thing of the past. A

further cause of the small number of entries no doubt has been the limitation to 30 cwt. loads—a limitation not originally contemplated, and one which has unfavourably differentiated the English van trials from the corresponding French competition. When next a similar competition is organised, it is to be hoped that the club will see to it that the wind is not taken out of its sails by arranging it immediately to follow an even more comprehensive event.

An Opening for the Motor Boat?

SOME time ago the Basingstoke Canal, the company owning which has been for many years in liquidation and Chancery, was put up for auction, but though the eloquence of the auctioneer alternately rattled the windows and nearly reduced his somewhat scanty audience to tears, and though the picture he painted of the scenery through which the canal passes quite justifiably recalled the classical descriptions of Arcadia and the Vale of Tempe rolled into one, he failed to obtain a single bid. Now, however, the derelict canal has found a purchaser in the person of a wealthy merchant, Mr. William Carter, residing between Poole and Bournemouth. When the unsuccessful attempt at selling the canal was made before, we put forward the suggestion that it might pay someone to buy it up and adapt it as a pleasure run for motor boats. We are delighted to learn that this is precisely what Mr. Carter states that he intends to do with it. We sincerely trust he will be successful. The Basingstoke Canal leaves the Wey Navigation Canal shortly above the beautiful sweep of wood-surrounded meadows on the south-west of Weybridge, and runs through some of the most exquisite woodland scenery in Surrey. We are glad to find, too, that Mr. Carter contemplates developing a motor boat delivery and passenger service on the canal, as well as adapting it for pleasure boating purposes. A large part of the canal runs through a district very imperfectly serviced by the railway, so that Mr. Carter's scheme should provide a good test of what the motor boat can effect for commercial purposes. Should he fail in this scheme, Mr. Carter holds out the awful threat of turning the canal into a line of light railway, so we hope for every reason that he will not fail.

The Royal Commission on Motor Traffic.

OUR readers will call to mind that sub-committees, both of the Automobile Club and the Motor Union, were a short time ago appointed to prepare the motorists' case, and to assist the Royal Commission on motor traffic by placing evidence before it. Since last week, however, a much better arrangement has been come to. Instead of two sub-committees of the two great automobile bodies, more or less effectively and cordially co-operating with one another, it has been arranged by these two committees to act as a Joint Committee in presenting the automobilists' case. This Joint Committee is under the presidency of the Hon. Arthur Stanley, M.P., and consists of the following members:—The Rt. Hon. Earl Russell, the Hon. Scott Montagu, M.P., and Messrs. C. Johnson, E. H. Cozens-Hardy, and Stanley Spooner, representing the A.C.G.B.I. Messrs. A. A. Dale, G. T. Langridge, C. H. Dodd, E. Shrapnell Smith, and Granville M. Kenyon, representing the Motor Union. The result of this appointment will be to ensure absolutely cordial co-operation between the two great bodies, and

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to make certain that the necessary evidence is placed before the Commission in the most effective and convincing manner possible.

Individual Co-operation and Assistance Needed.

BUT the Committee, however able and however representative, must be supported, and supported enthusiastically by the great body of motorists throughout the kingdom. The Committee will have the most important and difficult bit of work to carry out which it has ever fallen to the lot of any body of men representing the automobile movement to have to undertake. As we have already explained (in previous issues) the whole future of the movement may without exaggeration be said to be in the melting-pot, and the manner in which it will be moulded ultimately depends on the Royal Commission. Their report will without any question determine the next motor car law. Even in the event of a general election and the return of a Liberal Government to power occurring in the meantime, the findings of the Commission will be practically as certain to form the basis of future legislation as if the present Government remained in power.

Now, we have every confidence in the absolute impartiality of the Commission. But they must have all the arguments and all the facts ably put before them. The opponents of the automobile movement are powerful and energetic, and we may trust them to put before the Commission everything that can be brought forward to the prejudice of the new locomotion. It is essential, therefore, that the case from the automobilist's point of view shall be marshalled with convincing cogency. The arguments needed can, perhaps, be left to the Joint Committee and to the Parliamentary and legal members of the Automobile Club, but the accumulation of the necessary array of facts can be very largely contributed to by individual automobilists. Above all, individual motorists can contribute to what will undoubtedly prove to be the very heavy expenses of the Committee. It is most important that they should do both.

Wherever anyone is acquainted with facts illustrating the unsatisfactory working of the existing Motor Car Acts, the manner in which they occasion hardship and injustice to individuals and the respects in which they wholly fail to effect the objects desired at the time when they were passed into law, he should at once communicate them to the Committee, and from now on he should be on the look-out for similar data. Examples of magisterial injustice and prejudice and of the frequently unfair methods adopted by the police, are all of value. Of even greater value will be any evidence with which individuals may be acquainted of the advantages brought by the automobile to different districts or communities, either as a means of communication, or as an influence which has had the effect of creating or improving the value of property. Instances of this kind will be of great assistance to the Committee, for though that body is in possession of a great deal of such information, they can hardly have too much, and in these sort of matters, next to the quality, it is the volume of the evidence that tells.

But Finances Even More Important.

BUT whether he can or cannot assist the Joint Committee in the manner described above, every automobilist in the kingdom ought to contribute according to his means to the funds on which the Committee will have to draw. Great expenditure will be involved. A large number

of people will have to be employed, not merely in doing staff and clerical work and in collecting information and statistics, but in prosecuting local enquiries, cross-examining town and country residents, and generally acting as scouts and skirmishers for the Committee, and it is only enthusiasts who can be induced to do this sort of work without being paid for it. It is an opportunity which no one should neglect, and every automobilist in the country who fails to assist the Joint Committee, either by his own co-operation, the provision of evidence for which he himself can vouch, or subscribing to the necessary funds (or preferably by all three courses of action combined), is simply a short-sighted traitor to the automobile cause.

A satisfactory financial nucleus has already been formed. The A.C.G.B.I. has contributed £500 to the "Legislation Fund" of the Joint Committee, and £400 has been allocated to the same purpose by the Motor Union from its legislative war chest. Much more, however, is needed, and Mr. Rees Jeffreys, the enthusiastic and administratively capable secretary of the Joint Committee, is making an appeal to which it is to be hoped a hearty and universal response will be accorded. It is a situation in which the hackneyed line, "Pay, pay, pay," has a very real and personally apposite significance.

Proposals.

THERE are two directions in which the Joint Committee will be in a position to render valuable assistance to the Royal Commission in taking what we are certain it is their desire to do—an enlightened and far-seeing view of the whole situation—a view which may form the basis for legislation which will insure the future satisfactory development of the automobile movement, and at the same time adequately safeguard the interests of the general public. It is this that we all hope will be the result of the work of the Royal Commission, for it will mean not only prosperity to the automobile movement but prosperity to the country generally and the removal of a number of incessant and irritating causes of friction between the police and a class who have always been supporters of law and order.

The two directions to which we refer in which the Joint Committee can assist the Royal Commission, are (1) providing a comprehensive and well-digested collection of evidence and facts bearing on the situation as it is at present and the operation of the Motor Car Acts; and (2) putting forward suggestions for modifications in the existing laws.

It is perhaps premature for us to go into these points in detail at present, and in any case forming decisions upon them is specially the work of the Joint Committee, so that in anything we may have to urge now or in future, we would be understood merely as making suggestions for the Committee's consideration.

Principal amongst the matters which the Committee will press upon the Royal Commission as essential features of future legislation will no doubt be the abolishment of a specific speed limit (reliance for the safety of the public being placed in a general clause), the introduction of a clause compelling notice of intended prosecution to be given at the time an offence is said to be committed (or *immediately* afterwards), and means for getting rid of that crowning absurdity of the present Act, which compels magistrates to endorse licences for trivial offences whether they wish to do so or not.

HERKOMER TROPHY.

*(From Our Correspondent.)***HERKOMER TROPHY.**—The official scoring board over the Forstenrieder Park Course.

THE chief Continental event of the year for touring cars has been brought to a successful conclusion by the Bavarian Automobile Club, acting in conjunction with the Deutscher Automobile Club, and there is no doubt that the Herkomer Trophy may henceforth be counted among the yearly motoring fixtures of each. The competition began in a downpour of rain at the Kesselberg on last Saturday week, and ended the following Wednesday in a plague of dust. But despite the heat and unnecessary fast driving indulged in by the bulk of the competitors, no fewer than sixty-nine or seventy-nine starters entered Munich at the conclusion of the tour, thirty-four of them without a single mark of any sort against them. Had the question of tyres been ignored—as in the case of the trials organised by the A.C.G.B.I.—the percentages of success would certainly have been half again as much, such well-known drivers as Max von Martini, with his

40-h.p. machine, being completely out of the running on the third day by the mere fact of a puncture that occurred at a moment when his chances of carrying off the trophy were the brightest; while the British team of five Daimlers does not figure in the first dozen places for the sole reason of tyre troubles. The machines had run perfectly throughout, and by their striking performances at the Kesselberg—where third, fourth, sixth and eleventh places were secured in an event that was practically a local one, in that it was impossible to drive at a maximum pace without being familiar with the road—and at the speed trials on the flat on Sunday they carried everything before them, Mrs. Manville making faster time than any other competitor in any class whatever, Mr. Manville being second, Mr. Frank Rendle (driver, Mr. Albert Bush) third, and Mr. Philip Dawson fourth, each on a 35-h.p. Daimler. In the combined hill-

Mrs. Manville, who did the best time of 7m. 58s. at the Forstenrieder Park Speed Races, driving her 35-h.p. Daimler.

Mr. P. Dawson, close to the finishing point in the Forstenrieder Park, on his 35-h.p. Daimler.

HERKOMER TROPHY.

Bush, driving Mr. Rendle's Daimler in Forstenrieder Park. | Ehrhardt car finishing in the Forstenrieder Park.
HERKOMER TROPHY.

climbing and speed-trial events Mr. Manville came out first, Mr. Bush second, Mrs. Manville fourth, and Mr. W. Herdman Ash, with his "gallant little twenty-eight," eleventh.

Of red tape there had been practically none, while as regards the course, nothing so perfect as the manner of keeping it clear has ever been achieved. In a tour of over 600 miles, two ox-wagons and two carriages were the only vehicles encountered, nor did these in any way cause a moment's delay or trouble to the competitors. Another point, too, concerns the arrangements made for supplying medical aid. In the event of an accident occurring at any point of the route properly qualified persons with a full equipment were always waiting within three hundred yards of the spot.

In connection with the start in the Landsbergerstrasse at daybreak Monday morning, it is to be noted that certain cars, to which awards were made at the exhibition on Thursday and Friday of last week for the luxuriousness of their coach work, never ran in the trial at all, a policy for which the Bavarian Automobile Club was plainly never

Prince Ludwig Ferdinand
von Bayern in Forstenrieder Park.

prepared, else it would have made some provision whereby such machines should not be entitled to receive any mark whatever in a scheme designed specially for discovering the most desirable car proper. Clad in a great coat and looking very frail, the veteran American sportsman, Clarence Gray Dinsmore, sat on his 70-h.p. Mercedes, with Werner, of Gordon-Bennett fame, at the wheel, and was the first to receive the signal to start, the machine being the most powerful of those actually sent off. The rest were dispatched in the numerical order of the programme.

A white fog lay over the land during the first twenty kilometres, then the sun broke through, lighting up fir clumps and green fields. The early hour of the morning did not deter the local enthusiasts from lining the route throughout, the interval on the road between towns and villages being as thickly studded with onlookers as the most populous parts themselves. An hour had not passed before it was plain that a great number of the competitors were determined to regard the run as a race pure and simple. And, be it recorded, so it remained throughout.

Mr. Clarence Gray Dinsmore's Mercedes car in the Forstenrieder Park Tests.

Mr. W. Tischbein, of the Continental Company, driving his Mercedes car in the Forstenrieder Park.

HERKOMER TROPHY.

One of the serpentine roads of the Kesselberg, as seen from the public "Grand Stand."

This is one point in which the organisation fell short of the ideal, but the responsible party cannot be held to blame, because, like the A.C.G.B.I., it had fixed minimum times between stages.

The only satisfactory point of view in what happened can be regarded, is that all the machines, of which so high a percentage came through without trouble of any sort, underwent a vastly more severe test than they could possibly have done had more reasonable tactics been pursued. Imagine a string of cars bouncing along on a dry road in a continuous column of dust through which the edges of the green fields and woods could only be dimly discerned, and imagine that spectacle, not only for five minutes at a spell, but practically without pause for three consecutive days, and it would seem incredible that any carburettor could come through such a drilling. Moreover, it will readily be conceived that driving at full speed under such conditions frequently necessitated the jamming on of brakes in emergency fashion that your wise motorist invariably guards against to the best of his ability.

Grand Duke Cyril of Russia in Forstenrieder Park.

Max Hesselberger driving his Leon Bollee up the Kesselberg.

Many of the cars driven by certain drivers—happily none of the British team fell under the temptation—came on abrupt bends and right angle corners at speeds ranging from forty to sixty kilometres an hour. Yet a round dozen of vehicles so handled never experienced a tyre trouble of any sort whatever. To quote the words of "Admirable" Mr. Bush, "Is there any justice in luck?"

The first control was at Augsburg, where one had time to see the white wings of an unhappy chicken on the honeycombed cooler of the car behind, and for the first time realised how rapidly a transformation scene can be produced when motoring. Less than a couple of hours before each vehicle had appeared as bright as a new pin; now vehicle and occupants were literally plastered with dust. And the result? Well, in place of having to wait a mere hour, as per schedule, the cars had to wait over an hour and a half, and so it continued at every control throughout the day, for in Würtemberg there is a speed limit of thirty kiloms., or twenty miles an hour, hence the machine could not be written down

Werner, on his Mercedes racer, coming up the Kesselberg in the Bleichroder Race.

View of the Commissioners' Tent and part of the Course on the Kesselberg.

A bit of straight in the Forstenrieder Park.

as having officially entered until the pre-arranged minimum time had elapsed. This meant long waits in the scorching sun, which boded no good to tyres that had had the unnecessary strains imposed on them by taking corners at great speed with more than usually heavy bodies.

As at Hereford last year, so in Bavaria this week, the competitors have had a hearty welcome and a royal reception from all and sundry. Bouquets and fruit, and little notes requesting the receivers to send post cards announcing their fortune, were cast into the cars, and it illustrates how closely the vehicles were scanned as they passed along to record the fact that those tokens received by Mrs. Manville, in nine cases out of ten, were addressed to the "Only Lady Driver." Unhappily from the point of view of educating all classes of the public to regard the horseless carriages in a favourable light—which must be one of the chief purposes served by all reliability runs—a great number of machines ran with open exhaust boxes. Wherever the cars went it was holiday time for all manner of folk from school children of six summers to factory hands and farm labourers of sixty years and upwards. Moreover, the little ones were scattered in any manner in which they chose to group themselves, but were attended by their teachers, who one could see drawing their attention to feature after feature as the cars passed in review. One had experience of how wearisome it must be to wear a crown, for it was a case of returning courteous salutes hour after hour. It was noticeable, too, what a vast number of men who had passed the prime of life by more than a decade honoured the occasion by wearing medals they had won in war or other tokens of lives spent in rendering service to their country.

At Baden-Baden that evening there

were fêtes in honour of the competitors, who were mostly too tired to be present, but whose tongues went on wagging during hours when they would have been better employed in dedicating themselves to Morpheus. At dinner the German competitors, composing the bulk of those entered, could not refrain from talking about the English Daimlers, which had given them such a scare at Kesselberg, and in the speed trials. They were perfectly frank in expressing their relief that such a fortuitous circumstance as punctures had that day robbed Mrs. Manville, Mr. Edward Manville, Mr. Frank Rendle, and Mr. W. Herdman Ash of their chances of securing the trophy, but be it recorded to their credit no words of praise seemed too generous to bestow upon the cars themselves, which they said were "vunderbosch." Herr Max R. Zechlin, of Charlottenburg, said that he was familiar with all cars, but that he had never been in one so simple as these Coventry-built machines that ran like clocks, adding that he had been waiting for

over six months before advising a friend in China what make of touring car he should have, and that he himself would pay a visit during the month to the works at Coventry, and secure one of the machines for his friend. Prinz Franz Joseph, of Battenberg, has also determined on securing a Daimler.

Scarcely had the cars set out from Baden-Baden on Tuesday than the only mishap to the public that occurred during the tour, as we recorded last week, befell at Herrenalb, where two children were inadvertently knocked down by a competing car that was proceeding in the customary cloud of dust; but happily the result was not fatal as was at first reported. The steepest rises and most difficult course from the point of view of hair-pin corners were encountered as the renowned watering-place was left behind. Nothing more picturesque could

A group of spectators on the Kesselberg. Professor Herkomer will be noticed bareheaded in the centre of the picture.

be conceived than the scene of the long series of cars when wending their way up the beautifully-graded hills while the land was yet covered in the early morning mists that give an equivalent effect that a blue bloom had on fresh-plucked fruit. Then the crest having been reached, the cars ran downward as the sun's golden rays pierced the lanky tree trunks which lined the beautiful valley. There was one bad *pavé* during this stage, and then came greater hills billowing the one beyond the other and forming the steepest climb of the series mapped out. The negotiation of the somewhat awkward bends and corners was rendered the more difficult from the driving point of view by having to dart through sections of road shot with sunlight, then plunge into the shady portions for spells, Stuttgart with its unrivalled gardens being the first stage, and Aalen the second. There was an interesting little scene at the first-named place, when Werner (of Gordon-Bennett fame) met his aged mother and father, the little group being photographed beside Mr. Clarence Gray Dinsmore's big Mercedes. When one glanced at the aged couple one could not but wonder why Werner was not even better-looking than he is, for a handsomer man than his clean-shaven father, a pleasanter-visaged woman than his mother, are rarely encountered among the peasant class. Here the "receiving officers," as the marshals were nicknamed by some of the mechaniciens, were especially impressive, for some of their number appeared in gorgeous Prussian blue plush knickerbocker suits. By the irony of fate, at Aalen, a particularly German band "obliged" outside the Wagner Hotel. It was at this period that the news of the morning's mishap became officially known, with the result that the re-starting was delayed half an hour while a discussion took place as to the possible means of reducing the likelihood of such

The special stand of the members of the Royal Bavarian House in the Forstenrieder Park.

untoward events to a minimum, especially as Bavaria of the no-speed-limits was to be reached in the neighbourhood of Rothenburg. It was decided that any car overtaking a vehicle running at thirty kiloms. an hour should be disqualified forthwith. It can not be recorded, however, that the announcement made any striking difference to the tactics observable. In the heat of the day observers, unaccustomed to duties in the early hours of the morning, could not refrain from taking forty winks while the cars sped over the rolling agricultural country, where all the farm labourers had abandoned their tasks to appear in their "Sunday bests" in our honour along a road that was more than commonly well patrolled and petroled.

By some as yet unexplained re-arrangement of plans, there was no waiting at Rothenburg, which is supposed to be the scene of "Faust," a fact the more to be regretted in that the town is one of the three most ancient and picturesque comprised in the itinerary. The remainder of the day's run to Nürnberg was practically a sprint on the flat in the sunshine, the mediæval city being reached about 5 o'clock that afternoon. Here a busy and not easily to be forgotten evening was spent in sightseeing and meeting friends.

Despite his troubles during the day, Mr. Frank Rendle kept everybody within range in a roar of laughter during the dinner, recounting how, when his tyre troubles came again, he had to struggle with what seemed to be a small crowd of 500 persons in view of securing a puff or two of air for pumping-up purposes.

As the "Admirable" Albert Bush—who was then lying on his back at the time—remarked, at the conclusion of the story, "I guess if anybody knew English there, they'll think we were a bit

The travelling "Palace" car of Mr. E. G. C. Mathis.

At the Kochel See. The cars waiting their turn for the start up the Kesselberg Hill on Saturday morning, when the Bavarian Alps were shrouded in mist as seen in the photograph.

At Aalen, "en route" from Baden-Baden to Nürnberg, on the second day during the Luncheon Control.

HERKOMER TROPHY.

The Evening Control, on the first day of the Tourist Run, at Freudenstadt, before descending to Baden-Baden.

HERKOMER TROPHY.

Interested spectators awaiting the passage of the cars at Munich. The ancient Rathaus Gate is seen in the picture.

A view of the famous old Market Square at Munich.

HERKOMER TROPHY.

flowery." For a few glorious moments that day Mr. Edward Manville was leading the chase for the trophy, when—"punkt!" and that chance went with the air that escaped from the tyre.

On setting out from the picturesque old town, with walls reminiscent of the great one in China, and reaching the open country, it was a case of people—people every-

where, and always dust to gulp. The road lay through an open country, where the bends were fewer and less severe than ever before, across the Donau, with its waters of seaweed green, and so into Regensburg, another Rothenburg, and likewise a prearranged halting place, where the early arrivals were sent on ahead without the hour's halt that might have enabled one to explore the

At Rothenburg Control, one of the most picturesque and ancient towns on the journey.

A view of the Walchen See, showing one of the mountains in the background. The cars are seen in the foreground "parked" during luncheon after the Kesselberg Hill Climb.

HERKOMER TROPHY.

chief features of rare interest. The Bavarian blue and white flag was to be seen along the road of the last 131 kiloms. back to Munich, among those turning out to offer a hearty welcome being several groups of novitiates from monasteries on the abutting line of the route.

As the party got within 30 kiloms. of the finish of a 660 and odd miles tour, that had been completed without a drop of rain, leaden clouds hung over Munich, and the last car to arrive had scarcely come to a halt than the downpour began; happily, however, it did not last the proverbial fortnight, and everybody was in the best of spirits, for had not Professor Herkomer greeted them as they passed through Freising, "viel gluck"-ing them each in turn, and hoping that the event would prove the trophy to be theirs. As the "Admirable" Bush remarked afterwards, "I reckon he was taking a preliminary peep for our portraits." The finest reception accorded any individual competitor fell to the lot of Mrs. Manville, who on driving her machine to the finishing line was presented by the Bavarian Automobile Club with a great laurel wreath, some four and a half feet in diameter, with the Bavarian blue and white streamers. Mrs. Manville was specially invited to the banquet on Thursday night, and had a round half dozen of royal personages introduced to her.

Concerning the results, it may be briefly recorded that the trophy goes to Mr. Edgar Ladenburg, of Munich, for the performance of his 40-h.p. Mercedes, which had only 25 marks against it, the other places being secured by the following in order named, the marks in brackets indicating the marks against them: Hermann Wiengand, of Düsseldorf (27), 40-h.p. Mercedes; Willy Pöge, of Chemnitz (28), 60-h.p. Mercedes; Friedrich Küsel (29), 40-h.p. Benz; Fritz Opel (30), 35-h.p. Opel; Fritz Werner (30 and fraction), 30-h.p. Mercedes; B. Flinch (30 and fraction), 40-h.p. Mercedes, driver Herr Wild; J. Turck (31), 40-h.p. Benz; Alfred Tewes (31 and fraction), 24-h.p. Adler; Carl Lühr (33), 24-h.p. Adler; B. Flinch (34), 40-h.p. Mercedes; E. Scharrer (37), 40-h.p. Benz; Joseph Göss (38 and fraction), 24-h.p. Adler; and A. Baur (38 and fraction), 24-h.p. Clement; no fewer than 10 cars tying for 16th place, including Mr. Philip Dawson with his 35-h.p. Daimler, a highly creditable performance, as it is the first competition of any sort in which he has figured. Mrs. Manville, Mr. Edward Manville, Mr. Frank Rendle (driver Mr. Albert Bush), and Mr. W. Herdman Ash, each received a bronze plaque for coming through the competition. They have only suffered from tyre troubles, their machines never having caused a moment's anxiety, and it says much for British workmanship to record that Mr. Ash is one of those who only took to motoring in March last.

Of 79 starters, 69 came through, and 34 of the latter without troubles of any sort. At Thursday night's banquet, Doctor Freiherr von Schrenck-Notsing, president of the Bavarian Automobile Club, announced that next year tyre troubles would not count in the marking, as it had been recognised that some of the best cars had lost places because of them. Dr. Levin Stoelpling, of the German Automobile Club, made special reference to the good sportsmanship during the competition, and spoke highly of the Britishers who had brought five cars so long a distance, and stated that no other team's performance had surpassed that of the Coventry-built Daimlers, whose speed, simplicity, and regular running had been the subject of general remark and admiration.

Moreover, in a speech that was made in English with the special object of conveying the opinions of the officers of the Bavarian Automobile Club concerning the British performances, it was expressly stated that regrets were felt that tyre troubles had been allowed to count, it being deemed that a very different story in regard to results would have been unfolded had no marks been deducted for an accessory which had no part in a motor car proper. In conclusion, it may be stated that Professor Herkomer designed a magnificent menu card in colours, the original of which was presented to Prince Ludwig, but unhappily the work had not been completed in time for its reproduction in *facsimile*. The subject represents fate flying in front of a motor car, which has been obviously drawn from the Professor's own Daimler. We are promised copies in due course, hence we hope to be able, during the next few weeks, to reproduce so interesting and unique a souvenir of a most interesting competition.

The representatives of the Automobile Club at the meeting wish to acknowledge the courtesy of Herr Bernhardt Flinch, of Frankfurt, for his kindness in offering a seat on his 40-h.p. Mercedes, driven by Herr Wild; that of Monsieur Ernst Cuénod, of Paris, for a seat on his 40-h.p. Martini; and also of Mr. Edward Manville for a seat on his 35-h.p. Daimler.

THE chief official results of the Speed Trials, held on the Kesselberg Hill, and on the flat in Fürstenrieder Park, are given in tabular form below:—

RESULTS.

Place.	Machine and Entrant.	Kesselberg.	Fürstenrieder.	"Marks."
CLASS I.—60-100-h.p. (3 competitors).				
1	h.p. 60 Mercedes (W. Pöge) ...	m. s. 6 37½	m. s. 4 12½	m. s. 17 27½
2	70 Mercedes (C. G. Dinsmore) ...	7 29	5 0½	19 58½
3	60 Mercedes (W. Tischbein) ...	7 39	4 43½	20 1½
CLASS II.—32-60-h.p. (44 competitors).				
1	35 Daimler (E. Manville)...	8 11½	4 10½	20 33½
2	35 Daimler (F. Rendle) ...	8 15½	4 18½	20 49½
3	50 Hermes (G. Langden) ...	7 53½	5 10½	20 57½
4	35 Daimler (Mrs. Manville) ...	8 30½	4 9½	21 10½
5	40 Mercedes (E. Ladenburg) ...	7 59½	5 19½	21 18½
6	40 Mercedes (H. Weingaud) ...	8 11½	5 11½	21 24½
CLASS III.—16-32-h.p. (44 competitors).				
1	20 Martini (Martini and Co.) ...	8 15½	4 25½	20 57
2	24 Adler (Adler Co.) ...	8 58½	5 1½	22 59½
3	30 Martini (E. Cuénod) ...	9 19½	4 54	23 33½
4	24 Adler (W. Vogel) ...	9 22½	5 12½	23 57
5	24 Adler (J. Göss)...	9 24½	5 11½	24 1
6	24 Adler (v. Lüde) ...	9 42½	5 10½	24 35½
CLASS IV.—Up to 16-h.p. (8 competitors).				
1	15 Opel (B. Branda) ...	9 46	5 35½	25 7½
2	12 Metallurgique (Sudd Co.) ...	11 15	5 20½	27 50½
3	12 Beckmann (A. Jaensch) ...	12 16½	5 32½	30 4½
MOTOR CYCLES.—Up to 3½-h.p. (29 competitors).				
1	Adler (P. Karrer) ...	7 7½	4 57½	12 4½
2	Puch (J. Vecka) ...	7 15½	4 56½	12 12
3	Brennabor (W. Wolff) ...	7 39½	5 14½	12 54½
4	Neckarsulm (Frau Eisenmann) ...	7 50½	5 11½	13 1½
5	Adler (W. Finke) ...	8 49½	4 16½	13 6½
6	Wanderer (H. Meyer) ...	7 34	5 33½	13 7½
Over 3½-h.p. (12 competitors).				
1	Puch (E. Obruba) ...	6 22½	3 57½	10 19½
2	Mars (G. Retienne) ...	6 19½	4 15½	10 35½
3	Neckarsulm (M. Geiger) ...	6 59½	4 51½	11 51

The "marks" column contains the aggregate of the time on the level, plus *twice* (except for the motor cycles) the time on the hill, thus, although both events are combined for the classification of these two events, there is, nevertheless, a premium on good hill-climbing compared with pure speed. In our last issue we gave the formula on which these marks were to be allotted and this has of course been adhered to. Instead of expressing the marks in the form of fractions (*e.g.*, for example, $17\frac{2}{3}$), the aggregate times on which they are based have for convenience been left in their original form as minutes and

seconds; it will be understood, however, that "marks" have no actual significance by themselves as real times, but merely serve as "marks," for final classification for the entire event.

For the photographs of the controls, *en route*, at the Kochel See, and of Munich, we are indebted to Mr. Edward Manville. The other pictures of the racing, &c., are by the *Allgemeine Automobil Zeitung* of Munich.

HERKOMER TROPHY.—The British Team of Daimlers "en route" to Munich. A halt for breakfast on the "Blue Alsatian Mountains," the highest point between London and their destination. The cars during the journey climbed grades of 1 in 5 for 5 kilometres.



Returning Good for Evil.—A policeman rescued by motorists should surely be a spectacle to make the angels weep or the gods smile (whichever simile may be preferred). Such a portent, however, occurred recently on the Hog's Back, near Guildford, where a police sergeant was in considerable difficulty among a mob of gipsies, one of whose number he was attempting to arrest. The officer of the law was in a bad way, when two gentlemen passing in an automobile jumped down and enabled him to secure his prisoner, who, with the policeman they then conveyed to the next police station. Should, on some future occasion, this police sergeant be in any doubt as to whether some particular automobilist, on a measured stretch of road, is exceeding the speed-limit or not, we trust gratitude will prompt him to give his potential victim the benefit of such doubt.

A VERY unpleasant accident occurred on Monday to some of the horses of the Warwickshire hunt, of which Lord Willoughby de Broke, who is the leading spirit of the anti-motorist "Highways Protection League," is master. A car being driven by an American, named Barnard, ran away down Edge Hill and dashed into the horses, some of whom were injured, one having his leg broken. The car itself was smashed to pieces.

APROPOS of Lord Willoughby de Broke (it is his real title and was not invented by Dickens), the Highways Protection League, of which he is one of the vice-presidents, is on the warpath with a view to future

automobile legislation. This body, which includes Sir Walter Gilbey, the Master of Emanuel College, Cambridge, and Mr. Cathcart Wason, M.P., positively proposes that the speed of motor cars should be reduced to 14 or 15 miles an hour, and that local authorities should have the power, without being worried by having to apply to the Local Government Board, to fix a lower speed in towns and in villages, or anywhere else that may seem good in their eyes, at any pace they like. One can imagine what that would result in. Needless to say it would mean the extinction of the automobile movement. When the automobilist, after traversing 10 miles through the parish of Muddysludge, where the speed limit is fixed at 5 miles an hour, has to take a tour of another 5 miles through the township of Stoppemall Brokeby, where 1 mile an hour has been fixed by the District Council as the speed limit, before getting home, he will soon tire of the automobile. And that is what we should very soon see.

Even this, however, is not enough for the Highways Protection League. They desire, amongst many other little restrictions, to make "*driving so as to cause serious annoyance or discomfort to other persons a serious offence*," and to have the registers of motor cars thrown open to public inspection! Who is to be the judge of "discomfort?" A gouty old professor or master of a college seated on Leith Hill, and seeing a motor car traversing the valley of the Adur, might regard the car as being driven to his discomfort—it might run against his greatly magnified toe!—while the throwing open of the registers to the public would be hailed with acclamation by the noble and ancient army of blackmailers!

THE 40-50-H.P. RICHARD-BRASIER CAR.—PART I.

Fig. 1.—The 40-50-h.p. Richard-Brasier Chassis, as seen from the "off" side.

HITHERTO, all the latest standard types of touring car built by the Richard-Brasier firm have been of the "live-axle" form of construction, and this remark applies to all the three 1905 models, which are already well known in this country. Now, however, advantage has been taken of the phenomenal success scored by Théry in the Gordon-Bennett Race—both this year and last year—and the firm are producing an extremely powerful touring model which precisely follows the same general lines as their famous racers. The first chassis of this type arrived from France quite recently, and was on view at the show rooms of the English agents—Messrs. Mann and Overton—at the time that our photographs were taken. Others are expected to arrive shortly, and quite a number of these exceedingly well-designed cars are likely to be seen on our roads ere long.

This chassis, of which an excellent idea can be obtained from Figs. 1, 2, and 3 (views from the "off-side," from above, and from the front, respectively), is of the chain-driven pattern, and weighs about 20 cwt. It has, as can be seen, a particularly neat and simple appearance, while,

from the external dimensions of the engine, and the space that it occupies, a very inadequate idea is conveyed of the power that is in reality available. Although nominally of 40 to 50-h.p., we learn that the engine is actually capable of developing about 70-b.h.p. at 1,500 revs. per min.

Distinctive Features.

All the special features of the firm's celebrated racing cars have been embodied in the design, and, otherwise, the details of construction differ little, if at all, from those of these maker's touring vehicles. Thus we find quite a number of unusual characteristics which differentiate it from those of similar power built by other constructors:—The pressed-steel frame has two short inner members for carrying the engine. Between the frame and the axles are fitted "Truffault" anti-shock devices for protecting all four springs from too sudden action on exceptionally bad roads. A special device is employed for rendering the engine easy to start, by not only raising the exhaust-valves during the early part of the com-

Fig. 2.—View of the 40-50-h.p. Richard-Brasier Chassis from above.

pression strokes, but also by simultaneously "retarding" the ignition. A single lever control is adopted for regulating the engine. No provision is made for "timing" the ignition under ordinary running conditions. Lubrication for the engine is rendered positive and automatic. There is no fan of any kind for drawing air through the pump-fed radiator. The main clutch, which is of the leather-faced cone type, is prevented from slipping, when fully engaged, by a set of pins which then lock its two members firmly together. The shaft transmitting the power from the clutch to the change-speed-gear has unusually large, oil-retaining, universal joints at both ends. The gear-box which provides four forward speeds and a "reverse," is secured to the frame in a special manner, and other noticeable features about it are that its shafts run in ring-lubricated bearings, and that the differential gear lies outside, instead of inside it. The gear-box partly "floats" on the countershaft, the ends of which have large ball-bearings, and, in addition to the usual radius-rods for adjusting the twin-roller side-chains, there are other radius rods for taking the "torque" of the powerful, internal, expanding hub-brakes.

Chief Dimensions.

With its straight main frame, the chassis is suitable for taking any desired form of touring body, and its length is ample to allow for wide side-entrances to the rear seats. The wheel-base is 9 ft. 6 ins., and the track is 4 ft. 7 ins. On the front wheels, 910 by 90 mm. tyres are fitted, while the tyres on the driving wheels are 920 by 120 mm. The cylinders have a bore of 125 mm. with a stroke of 130 mm., and the car is usually so geared that on the fourth speed it can attain a speed of 65 miles per hour, when the engine is running at about 1,200 revs. per min.

The Main Frame.

The side members of the frame are quite straight, as seen from above, but have a tapering C-section, and are curved down in front to form the projecting spring-horns. Rigidity is obtained by means of gusset-plates at the corners, where the cross-members meet the side-members—as seen in Fig. 1—and in Fig. 3, is clearly shown the unusual shape of the front member, which is U-shaped to accommodate the radiator and the starting handle. This front member also serves to support the underframe, upon which rests the engine, the other end of the underframe being connected to the main frame beneath the dashboard.

All four springs lie immediately beneath the side members, and the "Truffault" devices lie close beside them—those at the rear being just inside them, while those in front are outside them. Both axles are formed by very substantial forgings, the shapes of which are well shown in Figs. 2 and 3; in the latter illustration an excellent idea is obtainable of the steering-heads also. All the road wheels have ball bearings, as also have the steering-heads; and the steering-gear is of much the usual worm-and-segment type, completely protected inside a dust-proof casing, and provided with all necessary adjustments for taking up any wear.

Securely fixed to the two side-members are the large ball-bearings that carry the ends of the differential counter-shaft; the same fittings that contain the ball-races have the chain-adjusting radius-rods hinged to them. The other fixings for the gear-box, which is unusually small in consequence of the external arrange-

ment of the differential-gear, are also visible in Fig. 2. At its front end, the upper portion is secured centrally to one of the intermediate cross-members, and at the other end there is a central link-attachment connecting both the upper and the lower portions of the box to the other cross-member of the frame.

Fixed transversely, quite at the rear, is the exhaust-box, to which two exhaust-pipes lead the gases from the four cylinders. From the engine itself there are four separate pipes, but these are united in pairs with the two long pipes. The

side-levers, the pedals, and the brake-gear are neatly arranged with cross-tubes spanning from side to side of the frame, and there is an unobtrusive dust-proof sheathing that lies beneath the engine and the main-clutch.

The Brakes.

Taking the brakes into consideration next, since they, also, are visible in the same illustrations, a very noteworthy characteristic is the provision that is made for taking the "torque" of the brake-shoes. In the case of the hub-brakes, which have toggle-operated internal shoes, the two shoes are hinged to the special radius-rod that anchor them direct to the frame. Not only are these radius-rods adjustable as to length—like the ordinary radius-rods—but two other adjustments are available, one in the operating rods and the other in the toggle-links themselves. These brake-shoes, which are made of hard phosphor bronze, are of large diameter and have a wide friction face.

Fig. 3.—Front view of the 40-50-h.p. Richard-Brasier Chassis.

The foot-operated brake on the countershaft has its contracting shoes anchored by a rod to the rear member of the frame, besides being fixed to the intermediate cross-member, as seen in Fig. 2. Any abnormal strain is thus well distributed, instead of merely being concentrated on a single member. The brake-drum is secured to the shell of the differential, and a very direct connection is established—with the necessary adjustments—between the toggle-mechanism and the foot-pedal, which is of the "push" pattern. Neither the foot nor the hand brake is inter-connected with the clutch. In Fig. 1 is seen the "sprag," lying as it does immediately beneath the side of the frame, on the "off" side.

The Change-Speed-Gear.

Fig. 2 gives a very good idea of the external appearance of the gear-box, the method of fixing which has been referred to already. It is made in two parts, and has two inspection covers, in the upper portion, both of which have been removed in our view. The "through" shaft carries the sliding spur-wheels on a squared portion, and the "direct-through" drive—giving the top gear—is obtained by a jaw-clutch. Unusual features are the long, ring-lubricated plain bearings for all three shafts—the "through" shaft, the lay shaft, and the transverse

countershaft—the absence of the differential-gear from the interior of the box, and the method of operating the mechanism without interfering with the oil-tight character of the casing. This last-mentioned provision is made by a short rock-shaft that passes through the side of the box and carries small pinions on each end. The outer pinion is in engagement with a toothed quadrant, and the inner pinion meshes with teeth on a sliding rack. The quadrant is in turn coupled up with the hand-lever, and the sliding rack carries the fork that controls the sliding spur-wheels. In Figs. 1 and 2, the light casing partly surrounding the quadrant and its pinion can be seen.

Two other "points" about the gear mechanism are deserving of attention. One is that the rear bearings for the "through" shaft and for the "lay" shaft are arranged *in front* of the constantly-meshing spur-wheels, through which the power is transmitted from the lay-shaft when either of the lower "speeds" are in play. And the other is that the neutral notch, on the quadrant for the hand-lever, is placed between those for the first and the second speeds, instead of between the first speed notch and the "reverse" notch. Four forward-speeds, in all, are available.

(To be continued.)



National Automobile Society.—Under this title another combination of automobile users has been founded, with the following list of vice-presidents:—Lord Armstrong, Sir W. Martin Conway, Captain B. D. Corbet, Mr. Spencer Chadwick, Baron De Lehmann, Sir Humphrey F. De Trafford, Bart., Sir Michael Foster, Sir Douglas Fox, Col. W. Hudson Hand, Sir William Thomas Lewis, Bart., Sir Kenneth J. Matheson, Bart., The Rt. Hon. Sir F. G. Milner, Bart., Capt. D. Hughes Morgan, Sir Gilbert Parker, Col. Edward Pryce-Jones, General Sir Julius A. R. Raines, Sir Edward L. Samuel, Bart., Sir Henry Seton-Karr, Sir Herbert Stephen, Bart., Sir James L. Walker, Sir Allen Young. The scope of the society is very wide. The objects are set forth in the prospectus issued by the society, from which we extract the following leading paragraphs:—

The society has been founded to represent, protect, and further the interests of the general body of motorists who use their cars for pleasure and touring, as distinct from purely trade and speed purposes.

The contention that the mechanically propelled vehicle, when properly handled, is a safeguard rather than a danger, as compared with the horse-drawn conveyance, is generally ridiculed, and in face of the numerous accidents and fatalities brought about by reckless driving and violations of the ordinary etiquette of the road, it is hardly to be wondered at that the prevailing opinion very largely obtains. In effect, the whole motoring community is suffering for the short sighted policy adopted by a small reckless minority represented almost entirely by irresponsible drivers and agents of makers, who seek advertisement for their cars at any cost.

The outcry against the racing car and reckless driver, and the general prejudice of the public, has now reached such a stage that popular opinion is apt to place all automobilists on the same footing, whereas the majority of car owners and users are more strongly than any member of the public opposed to the excesses of the few, inasmuch as the campaign of official terrorism and oppression that is now growing day by day, bears more than harshly upon those who have the true interests of the motor car and its future at heart. The closing of Hyde Park and other restrictive measures, and the recently introduced Amendment Act, are directly traceable to malpractices such as exist on the part of the small minority, but the effects of which react most upon innocent users of the highways.

The speed car as a racing instrument pure and simple is well-nigh impossible, and entirely out of place in this country except on a

proper track, and the development of the motor car on the lines of mere power and speed can do little if any good to its larger prospects. The society will strenuously set its face against such misuse of the public roads, and by an energetic and uncompromising opposition to such excesses, will be in a position to insist upon a proper consideration being given to the rights of its members, who have hitherto suffered by reason of an apparent or assumed acquiescence in law-breaking practices to which they are in reality entirely antagonistic.

It is not intended to formulate a number of extravagant agitations, as is now done in some quarters, but to proceed on unobtrusive and constitutional lines to secure an amelioration of the present restrictions, which are so unjust to an so unnecessarily detract from the enjoyment of that large section of the public that asks for nothing more than a fair and reasonable right to use the public ways in conjunction with others.

More particularly will the society's attention be devoted to the abolition of the present speed limit, which has entirely failed in its object and possesses no compensating advantages, and to the revision of the present exorbitant fines imposed for trifling offences, which serve no practical purpose whatsoever. The approaching General Election also presents an excellent opportunity for the election of representatives to Parliament, who are either themselves motorists or are pledged to support and further the work of the society, and a systematic canvass of the candidates will be made to ascertain their views, so that the votes of the society's members may as far as possible be directed to secure the return of those whose interests and sympathies are identical to their own.

In addition, the society will be developed in many other directions, of which the following may be mentioned:—

To establish and appoint in the different centres, official representatives, whose services will be at the disposal of members.

To arrange with leading hotels and garages throughout the country to give special facilities and terms to members of the society.

To advise members as to their rights and obligations, in connection with which the services of the official legal advisers will be available on their behalf.

To organise and conduct trials of cars and automobile inventions, and especially to test methods of alleviating the dust nuisance and to encourage municipal authorities to devote special attention to improved road-making in the interests of the general public.

To secure the revision and amendment of the restrictions at present in force in the parks and elsewhere, and to obtain for automobiles the same rights and privileges as are granted to other forms of traffic without question.

To publish for circulation among members an official journal dealing with the latest phases of the automobile world from the society's standpoint.



SPRING WHEELS FOR MOTOR CARS.

(Continued from p. 1019.)

THE HALLÉ SPRING WHEEL.—II.

TURNING now to the construction of the wheel itself, this may be divided into three main parts, viz., the wheel proper, the hub members, and the interconnecting members between the wheel proper and the hub members. The wheel proper consists of a tyre, A, with its rim, A¹, the latter being attached by spokes to the outer nave, A³, which is of T-section. As thus constructed, the wheel proper is in every respect an ordinary wheel in itself, and could be used as such around any hub designed to suit it. The principal hub member is the hub proper, B (engaging with the axle in the usual way) which is provided with a collar, B¹, about the centre of its length. Riding on either end of the hub, are two flanged sleeves, B², which are made as light as possible in accordance with the strength required. Semi-spherically headed bolts or links, C, pass through holes in the flanges, B², and

form of wheel, are carried from four radial arms that are attached to the collar, B¹, on the hub. Originally, these supplementary springs were of the single leaf type and were carried, as shown in Figs. 1 and 2, by shackles, E¹, attached to radial arms; in Fig. 4, however, they are of the volute type, and are attached direct to the radial arms themselves, which pass through slots in the outer nave, A³, that forms the seat of reaction for the springs, as shown in the illustrations.

The differences in detail which exist between the two early types of wheel and its present form are illustrated in Fig. 5, which gives a section and elevation of the central part of the new wheel. It is, as has already been pointed out, entirely in connection with the supplementary springs that the changes in design have been made. Instead of four volute springs, E, there are now, it will be noticed, no less than sixteen, but as these are arranged in pairs there are, in effect, only twice as many points of support as before. These springs, E, are now no longer carried on radial arms fixed to the flange, B¹, of the hub, B. Instead they are mounted on plates, E³, by means of bolts, E², which pass through, and tighten up against, the outer nave, A³. The plates, E³, are thus capable of being drawn up as tightly as may be desired against the outer nave, and in this way they form the means of supporting a set of eight radial plungers, E⁴, the outer flattened heads of which are interposed between the plate, E³, and the outer nave, A³. These plungers, E⁴, are carried in tubular guides, E⁵, which are fixed to the outer nave, A³, and virtually form part of it.

In other respects the construction of this latest model does not differ from those preceding it, except that a loose steel ring, B³, is fitted over the collar, B¹, on the hub, for the purpose of forming a suitable abutment for the inner ends of the plungers.

The difference in principle of action which has been introduced into this latest model will be evident on comparing the arrangement of the supplementary springs, E, as shown in Fig. 2, and as illustrated in Fig. 5. In the former case, the inner hub was permanently connected to all the supplementary springs, whereas now it is not connected to any of them, but merely rests on as many as may be in a suitable position to support it. In the early form of wheel there was nothing to be gained by tightening up the springs—although with the type illustrated in Fig. 4 this could be done if necessary. Now, however, the springs are independent of the hub, and in tightening them up they may be made to resist its weight without deflecting. The advantage of this system remains to be demonstrated. Hitherto, in spring wheels, the hub has been allowed to float on the springs, and although this method must inevitably cause normal eccentricity between the hub and the rim, yet such a wheel would appear to be more elastic than one in which the springs are only susceptible to small external forces which act in an approximately vertical direction, and in which the "recovery" after a shock is entirely "undamped"—owing to the upper auxiliary springs forming a "dead stop" against all possibility of reversed eccentricity.

It will be noticed that any relative rotary motion between the hub members and the outer nave will also cause obliquity of the links, C, and a consequent

Fig. 4.—The Hallé Spring Wheel. View of another early type of Hallé Wheel, fitted with Volute Supplementary Springs, E, instead of the Single-Leaf Springs shown in Figs. 1 and 2. Pressed Steel instead of Wire Spokes are another feature of this model.

loosely connect those members with the outer nave, A³, the bolts passing through corresponding holes in the web of this T-section nave. There are eight links or bolts in each wheel—four to each flange—spaced off equally round the central nave; the nuts as well as the bolt heads are hemispherical, so as to give as little resistance as possible to the oblique movements of the links when the wheel is in action. The main spring, or rather springs, D—for it is in two parts—is of the helical type, and has a square section. Both halves of the spring surrounds the hub, one part being on either side of the fixed collar, B¹, between which and the flanges of the sleeves, B², they exert their pressure. These springs are, of course, given a certain amount of initial compression, the effect of varying which has already been dealt with in the abstract. The supplementary springs, E, as used in the earliest

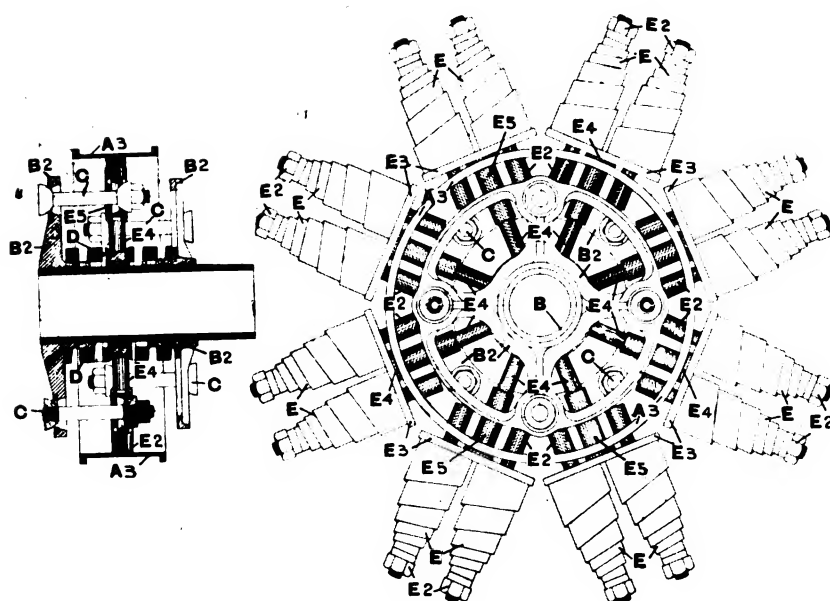


Fig. 5.—The latest form of Hallé Spring Wheel showing the arrangement of the self-contained volute springs and the plungers by which they support the axle. Only the central portion of the wheel is here illustrated.

compression of the springs, D, which will thus oppose such motion. The drive, which is transmitted to the hub member, and through the links, C, to the wheel proper, is, therefore, also affected by the presence of the springs, D, which thus tend to damp out any fierceness of the clutch on the car, and to a certain extent compensate for the effect of any sudden inequalities in the torque. The advantages of a "spring drive" have been emphasised by us before and it is a distinct advantage if any spring wheel provides, without additional complication, this desirable feature, more especially if, in so doing, the springs are still stressed in the normal manner and are only subjected to such stresses as they are suited to withstand.

Table of Reference Letters for the Hallé Spring Wheel.

A Tyre.	C Links.
A ¹ Rim.	D Helical main springs.
A ² Spokes.	E Supplementary springs.
A ³ Outer nave.	E ¹ Shackles for E.
B Inner hub.	E ² Bolts for E.
B ¹ Collar on hub.	E ³ Plates supporting E.
B ² Flanged sleeve on hub.	E ⁴ Plungers.
B ³ Loose ring over R ¹ .	E ⁵ Guides for E ⁴ .

THE Post Office has decided to establish a motor van service to convey mails and parcels by road between Glasgow and Edinburgh.

MANY excursionists from Lancashire, Yorkshire and other manufacturing towns in the North of England who used to go for their annual excursions to Blackpool by rail, have now abandoned that prosaic method of locomotion, and regularly take their annual outing (and wash) in motor coaches. "Full of undreamed of delights," is how they are said to describe such an outing by the local penny-a-liners, though we believe the motor-car beanfeasters spell it quite differently.

A PRETTY bad example of senseless police persecution has been provided by the Bedfordshire police. Experiments were being conducted by a London motor syndicate in regard to methods for preventing cars from raising dust. The runs took place down an unfrequented hill, and the whole thing was done for the purpose of obtaining data for alleviating what is admittedly a public nuisance. The police prosecuted, however, and obtained a conviction before the Woburn Bench, though there was not the slightest evidence of anyone being endangered or even inconvenienced.

MR. FRED PAYNE, of the Three Tuns, Maidstone, was on Monday set upon by a whole gang of Hooligans suffering from a combined attack of alcoholism and anti-mobile-monomania in the neighbourhood of Snodland. As similar incidents had occurred in the case of ordinary cyclists on the same road, Mr. Payne had supplied himself with a revolver, and had to use it to the extent of

wounding one of his assailants in the hand before he could get free from them.

MR. GEORGE HOLLOWAY, of Hereford, was recently arraigned before the Bench of that town for

"That whilst driving a motor car on the highway at Dormington he did not while passing certain cattle proceeding in the same direction, keep the motor car on the right or off side of the road."

After a lengthy hearing the case was ultimately dismissed. From the evidence it would appear that Mr. Holloway did his best to get past the cattle with the minimum of unpleasantness and that the summons was wholly unjustified. He complains to us that the clause in the regulation for motor traffic, under which the summons was taken, was never intended to be read literally in all cases, and states that this matter will be brought before the Royal Commission with the object of "having this absurd regulation altered"—a most commendable decision. The case is described in a local paper as of great interest to motorists and the farming community. So we would point out that Mr. Holloway might very well have countered by issuing a cross-summons against Mr. Davies who summoned him. Under the Highway Act of 1835 (5 and 6 Guelielmi 4 Cap. 50).

"If the driver of any wagon, cart, or other carriage whatsoever or of any horses, mules, or other beast of draught or burden . . . shall not keep his wagon, cart, or carriage or horses, mules or other beasts of burden on the left or near side of the road, every person so offending shall . . . forfeit any sum not exceeding £5."

We suggest, therefore, that the law of the land was on Mr. Holloway's side, and that while being acquitted himself, he should have been able to procure the punishment of Mr. Davies.

We accordingly agree with the local paper that the case is of "great interest to motorists and the farming community."

CORRESPONDENCE.

*. * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

RACING AND PROGRESS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—In view of the fact that it has been decided by the Automobile Club in this country to discontinue competing for the Gordon-Bennett Race, which decision has, I think, in many cases met with the greatest possible favour, I think it just as well that it should be clearly understood that racing has been of enormous experience to the motor car builder in finding out rapidly points of design and construction that have been of the greatest benefit to the motor car user.

A small example of this advantage which really can be shown to apply to almost any part of the motor vehicle from year to year, is to take merely wire wheels which have this year been fitted to my 6-cylinder Napier racing car.

The present system of wood wheel building which has been almost universally used, has always appeared to me one of the most uncertain points in a motor car, as wood varies so tremendously with various climatic conditions; therefore, it has been under most careful consideration for some time what sort of wheel could take the place of the present almost universal wooden wheel, and after very serious consideration Mr. Napier and I determined to try the experiment of wire wheels, and for this purpose we approached Messrs. Rudge-Whitworth, Limited, whom we knew had great experience in this direction, and, in addition to cycle wheels, have had great experience in building all kinds and variety of wire wheels for Indian and African rickshas and trotting sulkies, and for some years have made all the most successful wire wheels for touring motors, notably all those for the Lanchester Engine Company.

They set to work to manufacture the finest wheels within their power to make for the purpose for which they were intended, as they realised that to supply ordinary car wheels without modification would be simply to court disaster, and give the metal wheel movement a set-back which it would take years to recover.

The first thing they had to do was to ascertain the strength of the ordinary wooden wheel, and under what conditions it failed, possibly by inattention and misuse. This being done, existing wheels were tested to destruction, and a whole series of modifications and developments were similarly treated in the extensive Rudge-Whitworth Laboratories by their experts under Mr. John Pugh. Existing theories were tried and, in some cases, found wanting, and on the newly-established theories the wheels for powerful motor cars were designed, the main point desired being to produce the lightest possible wheels, at the same time keeping their strength well in excess of the strength of the axle on which they are fixed, for a collapsed wheel is a much more serious matter than a bent axle on which it is possible to get home.

The result of these experiments of Mr. Pugh's was a saving of over 40 lbs. in the weight of the four wheels with an increase in strength of over 30 per cent. over the wooden wheels, and the ability to stand variable climates incalculably better. Now these results of Messrs. Rudge-Whitworth's were only obtained at a cost of over £300, and to take this one point in the building of a modern racing car, it only shows that even where slight departures are made from current practice how necessarily expensive they are.

Another great point which has been established, as the result of this research and experimental work in wheels, has been that Messrs. Rudge-Whitworth have carried the design and production of wire wheels to a point of excellence and reliability far in advance of anything that has been done before, and have in the course of a few months spent in this experimental work, given the public an absolute security against wheel failure, which could not otherwise have been arrived at except by some years of building wheels for touring practice, whereas the present results have been obtained in actual racing in a few months.—Yours truly,

S. F. EDGE.

August 17th.

THE TOURIST TROPHY.

SIR,—Now that the lists have closed for the Tourist Trophy, so many of our friends have asked us why we are standing out, as they thought the contest would have "just suited the Duryea," that we would ask your permission to explain that, whilst our standard car would fulfil all the conditions as to weight and measurements, and whilst driving under "fuel consumption trial conditions" we could get 25 miles out of a gallon of petrol, our engine is just a shade too large for us to do so under racing conditions, so that, to have a reasonable chance of success in the contest, it would have been

necessary for us to build a special engine for the job, which engine would have differed so little from our standard in actual H.P. obtained, that it would have been useless as an addition to our patterns. Besides this, we hold that the race was intended as a contest between the regular standard touring cars in use to-day, and we learned at an early date that several firms were building "freaks" for the race which, whilst complying with the regulations, were not touring cars such as would be supplied to the public, and whilst we are quite willing to pit our cars in fair contest against any other makes of standard touring cars, we decline to meet cars of the freak order. If this race is held again, it would be well to withhold conditions until a time so near the race that whilst it would permit of minor alterations being made to bring a car within the regulations, would not permit of entirely new models being specially designed, built, and tested, with which those conditions could be circumvented.

THE DURYEA MOTOR COMPANY.

Coventry.

THE AUTO-CYCLE CLUB PERMITS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—The announcement of the Inter-Club Team Trial under the auspices of the Motor Cycling Club has once again raised the question of the desirability of a representative governing body for motor cycling. The Auto-Cycle Club claims to be that body, and in a letter to me dated August 10th, the Secretary informed me, in my capacity of Trial Hon. Secretary of the Motor Cycling Club, that a permit was necessary for the Inter-Club Team Trial, and that if such permit were not applied for and the fee of one guinea sent by noon on 16th inst., the event would be proclaimed and "Any club taking part, as well as the members competing, would be suspended. The promoting club would also be suspended." I asked for a copy of the rules, but these were not sent me, and I now find that they have not yet been delivered to the Auto-Cycle Club by the printers. My club had already decided by a simply overwhelming majority at a special general meeting not to apply for a permit for reasons which I will state later. On 17th inst. I received a copy of a circular sent out by the Auto-Cycle Club pointing out that the Motor Cycling Club had not applied for a permit, and saying that clubs or persons competing are liable to suspension, but not that they either are, or will be, suspended according to the threat contained in the letter of 10th inst. Evidently the Auto-Cycle Club committee are getting nervous, and have reflected upon the case brought against the Automobile Club by Mr. Weigel and the damages and costs that the club had to pay!

The Auto-Cycle Club, as is well known, spent money on full-page advertisements in the motor papers, drawing attention to its social programme and its members' events, and asking for recruits. This was a perfectly legitimate, if not wise, course for an ordinary club to take, but the cost was great. It must be clear to everyone that a private club catering for private members, and running in direct competition in this respect with other clubs having precisely the same objects, cannot claim to be the ruling body, and that it cannot expect the clubs with which it is competing to enrich its coffers by capitation and permit fees, thus providing it with the sinews of war. The position is equivalent to that of two local tradesmen, one of whom demands that the other shall pay half his rent for him, as otherwise he will be unable to go on competing for the local trade. Surely motor cycling clubs will not allow the Auto-Cycle Club to assume this position, but will insist on the club either ceasing to be a competitive social organisation or dropping its present ridiculous claim to be the governing body—a claim that is obviously absurd in these days of general representative legislation, and doubly so when it is remembered that the Auto-Cycle Club is by no means the oldest or the largest motor cycling organisation.

C. W. BROWN,

August 19th.

Trials Hon. Sec., Motor Cycling Club.



In the Collier Tyre Company's advertisement last week, by a printer's error, the old address in Shaftesbury Avenue was inserted instead of that of the new premises of the firm at 127-130, Long Acre, the removal to which was made quite nine months ago. So well known have these splendid new show rooms already become, however, that we have but little fear that any serious inconvenience can accrue from the mistake, although we naturally take the first opportunity of making public the necessary correction.

RACES, RECORDS, AND TRIALS.

In front of Longfellow's Home.

Where the Russian and Japanese Peace Conference is being held at Portsmouth.

SCENES ON THE GLIDDEN TOUR.—Some of the famous American points visited.

Mablethorpe Sand Races.—The motor races on the sands at Mablethorpe last Saturday, run by the Lincolnshire A.C. at the invitation of the Mablethorpe Amusements Committee, consisted of two events, one a handicap by distance and the other a handicap by time, both one kilometre. The course was good, but there was a slight hollow at the starting end, caused by some held-up water causing a stream which wore out a bed for itself. It had been stated that Mr. S. F. Edge, with Mr. C. Earp were to attempt record, but the conditions at the time were quite unsuitable. Mr. Edge drove over with his cousin, Mr. C. Edge, and from what he saw then, it is possible that he may make the attempt later.

The handicaps were based on the known capabilities of the cars, and scratch was represented by the 30-40-h.p. Daimler of Capt. H. E. Newsum. On the face of it, giving starts up to a limit of 400 yds. and 32 secs., it seemed that the starts were fair, but the car simply upset the handicap, making runaway wins every time it turned out, in heat, cross heat, or final. Its weight had been taken into consideration, but it got so quickly into its stride that the other cars, though far ahead, had hardly started before it was up and flying down to the judges. Another feature that affected the handicap was that some of the cars happened to be placed on loose places, and the wheels simply churned up the sand instead of moving the car. The racing was, however, very good, and there were several very close finishes, though in some of the heats, owing to bad starts, there were very easy wins.

The heats were arranged so that in the event of absentees the next on the programme was taken, there thus being no walk-overs. Mr. W. R. Pennell was starter, and got the cars off without any waiting, except, of course, for the cars running up the course for their next heats. Mr. A. A. Padley, with Major Fowler and Mr. R. Connell, were the judges. The results were as follows:—

1ST EVENT.—*One Kilometre Handicap by Yards.*

First Round.—Dr. Gilpin, 12-h.p. Georges-Richard, 260 yds., beat Mr. C. F. Crow, 5-h.p. Rexette, 340 yds., by about 50 yds.

Mr. C. Nelson, 6-h.p. De Dion, 380 yds., beat Mr. E. Brockway, 9-h.p. Clement-Talbot, 270 yds., by 30 yds.

Mr. W. Wadsley, 4 h.p. Orient-Buckboard, 400 yds., beat Mr. J. Isle, 8-h.p. Rover, 290 yds., by about 10 yds.

Capt. H. E. Newsum, 30-40 h.p. Daimler, scratch, beat Mr. T. M. Winch, 10-h.p. Century, 250 yds., by half the course.

Dr. E. Cragg, Baby Peugeot, 400 yds., beat Mr. W. Nissler, 8-h.p. De Dion, 290 yds., by 50 yds.

Mr. A. Robinson, 9-h.p. De Dion, 310 yds., beat Mr. P. Wright, 8-h.p. De Dion, 300 yds., easily.

Mr. C. W. Pennell, 16-22-h.p. Martini, 150 yds., beat Dr. Millar, 9-h.p. Peugeot, 390 yds., by 20 yds.

Capt. W. A. Cole, 12-h.p. Durkopp, 260 yds., beat Sir H. B. Bacon, 24-h.p. Wolseley, very easily, the latter starting badly.

Mr. W. Newsum, 8-h.p. De Dion, 300 yds., beat Hon. Mrs. Giffard, 12-h.p. Sunbeam, 240 yds., by 30 yds.

Mr. T. Swaby, 12-h.p. Darracq, 240 yds., beat Mr. H. May, 8-h.p. Cottereau, 310 yds., by 20 yds.

Second Round.—Mr. C. Nelson beat Dr. Gilpin; Capt. Newsum beat Mr. Wadsley; Dr. E. Cragg beat Mr. Robinson; Mr. C. W. Pennell beat Capt. Cole, and Mr. T. Swaby beat Mr. W. Newsum.

Semi Final.—Capt. Newsum beat Mr. Nelson; Dr. Cragg beat Mr. Pennell, who beat Mr. Swaby.

Final.—Capt. Newsum again ran away, winning easily, Mr. Pennell 2nd, and Dr. Cragg 3rd, but owing to some running in the semi final it was stated that Dr. Cragg was placed 2nd.

EVENT 2.—*One Kilometre Handicap by Time.*

1st Round.—The winning cars were Capt. Newsum's 30-40-h.p. Daimler, scratch; Mr. C. W. Pennell's 16-22-h.p. Martini, 9 secs.; Dr. Gilpin, 12-h.p. Georges-Richard, 17 secs.; Mr. W. Newsum, 8-h.p. De Dion, 20 secs.; Mr. J. Isle, 8-h.p. Rover, 20 secs.; Mr. A. Robinson, 9-h.p. De Dion, 24 secs.; Mr. C. Nelson, 6-h.p. De Dion, 30 secs.; Mr. W. Wadsley, 4-h.p. Buckboard, 32 secs.; and Dr. Millar, 9-h.p. Peugeot, 31 secs.

2nd Round.—Capt. Newsum beat C. W. Pennell; Dr. Gilpin beat Mr. Isle; Mr. W. Newsum beat Mr. A. Robinson; and Mr. W. Wadsley beat Mr. C. Nelson.

The final was secured by Capt. Newsum, whose Daimler again walked away; Mr. Wadsley was 2nd, with his Buckboard; and Dr. Gilpin, 12-h.p. Georges-Richard-Brasier, 3rd; but as, by the rules, each car could only take one prize, Mr. Wadsley took the trophy in this race, though, of course, Capt. Newsum remains the winner.

Saltburn-on-Sea Races on the Sand.—Beach races are now quite the fashion, and are multiplying all round the coast. The two days' meeting arranged at Saltburn for September 4th and 5th promises some good sport, judging by the extended advance programme to hand.

The Wednesday run from Luchon to Bagnères de Bigorre and back, 70 kiloms., was specially arranged for noting the regularity of running, hill-climbing powers, brakes, average speed, and comfort in riding, for the purposes of assisting in classing.

Sixty-eight cars weighed in at Toulouse and 60 actually started, all of which with the exception of one—a C.G.V. car—arrived in good time at their first day's journey's end. The C.G.V. came to complete grief about 48 kiloms. from Toulouse, apparently by reason of the utterly reckless driving of the chauffeur, Albert, when taking a particularly bad turning, of which repeated warnings had been given and special danger flags placed

GLIDDEN TOUR.—Start of the White Steam Car "Squadron" from New York.

There will be on the first day twelve races for tourist cars, classified by price of chassis, and motor cycles, and three events for racing cars. The second day will be devoted to a gymkhana, comprising the usual interesting and amusing events, the programme including no less than eleven different items. The proceedings will wind up in the evening of the second day with a procession of cars round the town, prizes being offered for the best decorated car, and the most comical car.

Races commence each day at 1 p.m. and entries close on August 30th. As the distance to be covered in all races is two miles, it is possible some new records may be put up. Two special races are scheduled for steam cars for which the entrance fees are 15s. for two-seated cars and 20s. for four-seated cars. The fees for the other tourist events range from 15s. for small cars up to 50s. for the bigger fry—motor cycles being let in for 5s. (light machines), and 7s. 6d. for cycles up to 110 lbs. weight. The racing car items are:—

Scratch race, standing start, distance 2 miles, for cars up to 1,000 kilogs. Fee, £4.

Scratch race, standing start, distance 2 miles, for cars up to 1,000 kilogs., for the Chriton Cup. Fee, £5. The car doing the best average time for three runs will be the winner.

Handicap for all and any type of car (distance 2 miles) which have run in any of the former events. Stripping cars or changing bodies not allowed. Fee, £1.

just before it was reached. One of the occupants of the car, M. Salvaire, unfortunately was reported as having died through his injuries, and a gloom was consequently cast over the rest of the proceedings. Most of the cars throughout the week have otherwise been travelling well, and when the records for each car after the finish have been tabulated, the results will be announced. The classification from these records will be arrived at by points allotted, in regard to regularity of running, consumption per total ton kilom., speed on the level and on hills, brake efficiency, starting, elegance and comfort, accessibility, &c. At each stopping place for the evening, *fêtes* and entertainments were the order of the day in honour of the unusual visit.

Vedrine Electric Vehicle Trial. — On Saturday, 19th inst, two Vedrine electric vehicles left Paris for Trouville, the object being to establish as high a speed over the distance as possible. Both cars are fitted with a single motor carried by and driving directly on, the back axle, the speed of the motor giving a range of 10 to 45 kiloms. per hour. The smaller of the two cars—which has three seats—weighs 1,580 kilogs. and has a battery of Agathos accumulators, weighing 700 kilogs., of which the capacity is 250 ampère-hours. At a speed of 40 kiloms. per hour, the normal discharge of this battery

Pyrenees Cup.—A splendid start was made last Sunday in the first stage of this seven days' trial for tourist cars. The results should prove of considerable interest to car users, as the route is mainly in the Pyrenees, some of the severest gradients in these mountains being traversed during the week. Toulouse was the starting point, and the daily runs, terminating to-morrow (Sunday) were as follows:—

	kiloms.
Aug. 20.—Toulouse to Perpignan	276
„ 21.—Perpignan to Foix ...	195
„ 22.—Foix to Luchon ...	151
„ 23.—Luchon to Bagnères de Bigorre ...	70
„ 24.—Luchon to Canterets ...	171
„ 25.—Canterets to Biarritz ...	209
„ 26.—Biarritz to Pau ...	110
„ 27.—Pau to Toulouse ...	203

GLIDDEN TOUR.—Webb Jay, who is reported to have been mortally injured at Buffalo, climbing Mount Washington.

is 60 ampères. In the larger car, which has four seats, the accumulators, which are of the same make, weigh 550 kilogs., and have a capacity of 210 ampère hours. About half way to Trouville both batteries were recharged, the larger in three hours and a half, the smaller in two hours and three-quarters. The total timed distance of 187 kiloms (116 miles) was accomplished by the three-seater at a mean speed of 20·8 m.p.h., and by the four-seater at a speed of 16·8 m.p.h.

Light Delivery Van Trials.—The arrangements for these are now complete, and the four centres, Oxford, Kidderminster, Leicester, and Cambridge, have been decided upon. The daily runs will radiate from these. The vehicles will assemble at Oxford on Saturday, September 16th, the first run taking place on the following Monday. Kidderminster will be reached on September 26th, Leicester on October 4th, and Cambridge on the 14th of the same month. There will be seven runs from Oxford, Cambridge, and Leicester respectively, and six from Kidderminster. During the stay at Leicester a day will be set apart for the tests of manœuvring, adhesion, and brake power, &c. The last day upon which entries will be received is next Wednesday, August 23rd, and it is hoped by that time there will be a really representative entry of the British motor trade. The full particulars of the rules governing these trials were published by us some months ago.

The classes and daily routes are as follows:—Class A, up to 5 cwt.; Class B, 5 to 10 cwt.; Class C, 10 to 20 cwt.; Class D, 20 to 30 cwt.

Routes.	Approx. Distance for Classes	
	C & D	A & B
<i>Oxford (Depot No. 1) —</i>		
To Brackley, Towcester, and Northampton, and back ..	57	82½
„ Woodstock, Long Compton, Stratford-on-Avon, and - back ..	59½	80
„ Witney, North Leach, Cheltenham, and back ..	62	82
„ High Wycombe, Beaconsfield, Uxbridge, and back ..	62	79
„ Banbury, Fenny Compton, Morton, and back ..	61	82
„ Benson, Henley, Maidenhead, Slough, and back ..	58½	81
„ Faringdon, Swindon, Marlborough, and back ..	58	81
<i>To Kidderminster (Depot No. 2) via Long Compton, Stratford-on-Avon, and Droitwich ..</i>		
„ Worcester, Tewkesbury, Gloucester, and back ..	70½	70½
„ Witney, Tenbury, Leominster, Hereford, and back ..	57½	79
„ Witney, Worcester, Evesham, Broadway, and back ..	59	82
„ Bridgnorth, Shifnal, Newport, Hirstock, and back ..	60	80½
„ Bridgnorth, Shifnal, Wellington, Shrewsbury and back ..	60½	83
„ Witney, Worcester, Evesham, Broadway, and back ..	59	82
<i>To Leicester via Bromsgrove, Stratford-on-Avon, War- wick, Coventry, and Naborough (Depot No 3) ..</i>		
„ Ashby-de-la-Zouche, Derby, Ripley, and back ..	62	81
„ Loughborough, Nottingham, Mansfield, and back ..	58	81
„ Melton Mowbray, Grantham, Normanton, and back ..	62	80
„ Hickley, Tamworth, Alrewas, and back ..	59	80
„ Welford, Northampton, Yardley, Hastings, and back ..	60	80
„ Market Harboro', Northampton, Weedon, and back ..	62	80
„ Lutterworth, Rugby, Daventry, Weedon, and back ..	60	80
<i>Trials of manœuvring, adhesion and brake power, &c.</i>		
<i>To Cambridge (Depot No. 4) via Market Harboro', Thrapstone, and Huntingdon ..</i>		
„ Huntingdon, Norman Cross, Stamford, and back ..	68½	68½
„ Ely, Littleport, Downham Market, and back ..	60½	86½
„ Newmarket, Bartonmills, Thetford, and back ..	56	80
„ Royston, Ware, Hatfield, and back ..	56	78
„ St. Neots, Biggleswade, Hitchin, and back ..	58	83
„ Newmarket, Bury St. Edmunds, Wattisfield and back ..	59	81
„ Bishops Stortford, Epping, Wake Arms Inn, and back ..	50	82
„ Bishops Stortford, Epping, Wake Arms Inn, and back ..	60	82

Total mileage .. 1818½ 2408½

Postponement of Trials.—At the
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THE TOURIST TROPHY—(continued).

To facilitate reference to the various specific points raised in our article, and referred to by our correspondents, we reproduce the summary of the chief suggestions put forward by us, as also the list of the weights, measures and dimensions that are specified by the rules for this year's race.

Suggested Modifications of Rules for Future Years.

- (1) The bodies to be comprised of four independent parts.
- (2) No cars to have engines with less than two cylinders.
- (3) No cars to have more than four forward "speeds."
- (4) Any obvious "freaks" may be refused entry at discretion.
- (5) Any unduly noisy car may be disqualified at discretion.
- (6) The race to extend over two, or three, consecutive days.
- (7) The cars to start, at equal time-intervals, in order of numbers.
- (8) The cars to be stopped, timed, and re-started immediately, at numerous "controls."
- (9) The cars to carry numbers denoting laps completed.
- (10) The cars to be driven by different drivers each day.
- (11) A class to be instituted for two-seated cars, to compete separately, and on other days.

Specified Weights, Measures, and Dimensions in the Existing Tourist Trophy Rules for this Year.

- (A) *Fuel Consumption*—1 gall. per 25 miles (dry, average road).
- (B) *Weight of Body and Load*—950 lbs. (including 300 lbs. ballast and 22 stone passengers).
- (C) *Weight of Chassis*.—Between 1,300 lbs. and 1,600 lbs.
- (D) *Wheel-Base*.—Not less than 7 ft. 6 ins.
- (E) *Track*.—Not less than 4 ft.
- (F) *Platform behind Dash*.—Not less than 6 ft. 6 ins. long and 2 ft. 6 ins. wide.
- (G) *Width of Seats* (each pair).—Not less than 3 ft. 4 ins. (between cushions).
- (H) *Height of Seats* (from ground).—Not less than 2 ft. 10 ins.

IEWS AND OPINIONS OF OUR READERS.—V.

Mr. John Adam:—

I have read with interest your very able articles on the Tourist Trophy. I am of opinion that a trial of this kind will be of far more benefit to automobilism than the Gordon-Bennett Race. Probably some years ago the Gordon-Bennett helped very materially the advancement of the manufacture of cars, but after seeing the race held in Ireland two years ago, I came to the conclusion that its usefulness was at an end, and that what was then required was a contest on the lines of the Tourist Trophy.

What the average motorist wants is a car that is thoroughly reliable, silent, and with a considerable amount of elasticity in the engine to allow of it taking a fair hill on its top speed. This, I think, can quite well be realised with what you specify for weights, measures, and dimensions, and would probably be a car that would suit the majority of buyers, and at the same time might be built at a reasonable price.

It is impossible to make rules to cover every contingency, but I have no doubt that if the special commission who originally made the rules would consider the results after the trials have been held, they will be in the position to improve the conditions, should it be thought advisable to repeat the trials next year.



The Lanchester Motor Company, Limited:—

Referring to your article on the Tourist Trophy, we beg to state that whilst fully appreciating the action of the A.C.G.B.I. in organising an annual race for touring cars, we consider that the interests of the industry are being hampered by one or two of the regulations that the club are enforcing for this year's competition.

We think that there should be no condition which compels any manufacturer, wishing to compete, to build special cars in order to be eligible. If a manufacturer can build a car which may be heavier than the maximum limit specified in Rules 9 and 10, and is capable of successfully competing against cars of less weight, of what advantage is it to encourage a reduction of weight which might induce manufacturers to place too much importance on lightness, at the expense of durability?

We think, therefore, that while imposing a minimum limit of weight, it would be advantageous to remove or considerably increase the maximum limit.

The regulation limiting the petrol consumption is, in our opinion, sufficient restriction to induce the manufacturer to build cars as light as is consistent with reliable practice and durability, and to limit the weight of a touring car that is to be capable of carrying four passengers (including driver) excludes many manufacturers from entering an excellent competition, for which they are well qualified in all other respects.

Taking THE AUTOMOTOR JOURNAL's list of "Good points in touring car construction," we beg to suggest slight modifications: under the heading "Those which are also put at a premium in the Tourist Trophy," "Durability" should be omitted, as it is almost impossible to form any reliable opinion as to this important feature in so short a race as the A.C.G.B.I. have selected for the Tourist

Trophy. In its place, we think "Flexibility of carriage" or comfort of carriage suspension might be inserted, as this feature is one of the most important in the construction of touring and pleasure vehicles, and has, until recently, received but little attention from the majority of designers and manufacturers.

Silence might also be included under this heading, as it is open to the same conditions of judgment as such items as "Smokelessness" and "Absence of Vibration."

Rule No. 16 covers the admission or otherwise of freak devices. It may be opportune to remind the public, however, that it is to the so-called freaks that the industry is indebted for many valuable improvements, and it would, therefore, be well not to be too hasty in eliminating them from the Tourist Trophy Competition.



MANAGING DIRECTOR

Mr. Mervyn O'Gorman:—

Personally, I think the Tourist Trophy promises to be the most brilliant step the club has yet taken and the finest thing in races yet devised, interesting, nay, thrilling to the last degree—amusing, just in the way sport should be amusing by the patent discomfiture of those who are either too thrifty of petrol to arrive in time, or too greedy of speed to arrive at all. It is a competition between scientific researchers, between practical mechanics and between drivers who are not only skilful at bullying the most out of a car, but at coaxing it into its best behaviour.

I think that when your articles have been read and thought over, the public may better appreciate what a boon this Tourist Trophy is attempting to secure for us all, and thereupon if there should ensue a timely dipping of the hand into the appropriate pocket, a Grand Prix might result indirectly from your labours, to reward the ingenuity and labour of competitors, and to establish it on an international basis.

It has been admitted from the beginning that many minute technical flaws may exist which the first experiment will disclose, and which will be all the more easily detected from having been in many cases anticipated by your articles and your correspondents' letters.

You do not, if I remember rightly, touch upon the incentive that will be given to securing a method of ignition which shall be thorough and perfectly synchronized as between the various cylinders by the rule calling for fuel economy; yet this is so, for the poorer the mixture the greater the necessity for a perfect igniter. The automatic timing of the spark for maximum output is at a premium also, because it frees the driver from an additional worry and saves fuel. Poor mixtures must be more fully ignited if they are to propel the car any further or any faster than rich mixtures per gallon of fuel.

A large experience with oil and gas engines for electrical purposes seems to show that each engine has a well-defined speed of rotation at which it is most efficient in respect of fuel. This may lead to surprising advances in the event of the Trophy becoming popular. I do not only mean that the best speed ratio of engine-crank to road-wheel will be studied with great advantage to everyone, but that the "infinitely" variable gear may receive an unexpected encouragement, while slow pulling or flexibility may receive an

unexpected discouragement from the race, both by reason of the superior fuel economy of fewer cylinders, and by the fact that the race affords no particular advantage to a car that can crawl "on the top notch."

A matter, the study of which will be favourably affected by the "Trophy," is the size of wheels, another is the power loss in tyres and in ill-fitting brakes, another is the heavy power loss in inefficient second speeds. Clutches do not stand to profit much, nor do chassis designs, nor silence, nor dustlessness, nor smokeless lubrication, save remotely, nor springs, nor absence of vibration. Ball and roller bearings will gain, and so will axle strengths and care in design of differentials and Ackermann steering to avoid rub of tyres. The chain *v.* bevel drive discussion may be finally settled if efficiency is to be the password. Whether we may yet rake in most outstanding car requirements, and make them essential to winning this race, remains to be seen, and depends on the ingenuity and technical skill of the Technical and Races Committee of the club, and the support they are given by the makers and the public.

Although I do not think with Mr. Rolls that motor racing under the one tonne limit, which he describes as "motor racing pure and simple," has completed its work of encouraging the research for finer steels, improving the girder construction, wheels and tyres for heavy strains, carburettors for maximum output, I do think that the A.C.G.B.I. has made a most opportune move at the time when the Gordon-Bennett race is about to be relegated temporarily to an inferior position.

Mr. G. E. Whittaker

Mr. G. E. Whittaker:—

I have read with a good deal of interest the three articles on the Tourist Trophy Race in your issues for the last three weeks of July, as I feel sure every man connected with the trade has done. Although it is undoubtedly too late at the present time to hope for, or even wish for, any alteration in the existing rules covering the Tourist Trophy Race for this year, I have little doubt that your articles, in which some of the main points, which seem to have been not too well considered by the Committee which drew up these rules, will cause some alterations in rules for future events of this description. I think that you and some of your correspondents who have written you on this subject are perfectly correct in assuming that it is a type of competition which in future will prove of most interest to the general public, and will overshadow such meetings as Brighton and Blackpool.

I am far from advising that meetings held for the purpose of speed trials should be discontinued, because I am most decidedly of the opinion that an introduction of high-powered cars into counties and towns where there is at present a marked hostility to the motor movement will be productive of good results, because it will enable the public in these localities to see for themselves that motoring is not dangerous.

Possibly you may care for a few opinions of mine on the subject of your articles, as representing the selling department of a motor manufacturing company as opposed to the purely productive or constructional department.

Dealing with the eleven chief points raised in your article, I would first of all beg to suggest that there will be little practical utility in having bodies, as you suggest, made in four independent parts. It is purely a question of convenience, doubtless, that enters into your mind, but although I have read your articles very carefully, I do not altogether see what practical purpose would be achieved by this novelty in construction.

With regard to the second point, this, to my mind, raises the whole question of the description that must be applied to the event, and I shall deal with this point under No. 6.

Nos. 3 and 4 may be grouped together at the present stage of motor construction, for at the moment a car possessing more than four forward speeds would probably partake of the nature of a freak, even if only in this respect, and the final problem of transmission in motor cars has yet to be solved, so that a car which at the present time may seem to be a freak, may have within its freakish construction the embryo of an idea, which if produced and further developed may very well revolutionise many a point connected with the construction of motor vehicles.

Nos. 5 and 6 is a point upon which I think we might all very well agree, because this Tourist Trophy Race is surely for the purpose of bringing before the public the most desirable car, and the car which is noisy is not desirable. On the other hand—I am now passing to No. 6—if you admit any other cars but those possessing more than four or more cylinders, the two-cylinders would suffer by comparison, and may be described as noisy. This brings me to the question raised in No. 2. The Tourist Trophy should be, I think,

a test of absolute reliability, and speed should be a secondary consideration, so that I think it will be rather unfair to handicap the single cylinder cars and the two-cylinder cars, which must attract a very large section of the public who would be inclined to take up the pastime of motoring were it not for the expense; and to have such a sweeping recommendation as that conveyed in your two propositions, would instantly put out of court certain small cars which have proved themselves to be full of reliability and possessing a fair amount of normal speed. Amongst others, the single-cylinder De Dion cars and the single-cylinder Argylls, as well as others less extensively known, would suffer, and the selling agents of these cars might very well ask that a special trial be conducted for their benefit. If you extend your race for two, three, or more days, you in effect bring this Tourist Trophy Race of yours into line with reliability trials, and if you do this I suggest that you do it on the lines of the recent Meyan-Siddeley sporting match, which would be the best for all purposes. This event had one clause in it which made it more or less a race, which was that the cars must not go at a lower speed than 25 kiloms. per hour, and it strikes me that if you have a similar rule with regard to the future Tourist Trophy events, that this will be quite sufficient. Furthermore, if you propose to increase the time of the race to make it extend over more than one day, I suggest these modifications:—

First of all, that no manufacturer shall enter more than two cars, no matter how many types he builds.

Secondly, that the same remark applies to agents in England who have various cars under their control.

Thirdly, that the race be open, not only to four-cylinders and more, but also to cars possessing one, two, or three cylinders, on condition that the restrictions given in my Nos. 1 and 2 be strictly observed.

Fourthly, that no private owners be allowed to put other cars in.

Fifthly, that the tour (for it would resolve itself into nothing less) be undertaken all over England, with the exception of those counties which have proved themselves notoriously inimical to the motor movement, and that, if necessary, Scotland be included as well.

Sixthly, that the cars must do 180 miles per day, and that, excepting during controls, a speed of not less than 18 and not more than 20 miles an hour be averaged in each separate mile.

Seventhly, that the tour extends for 2,000 miles.

Eighthly, that no allowance be made for punctures, for if a car is properly designed, it will be shod with such tyres as will preclude to a certain extent all possibility of punctures whilst on the trip.

Ninthly, that no time be allowed for replenishments, change or mechanical parts, or anything else.

Tenthly, that an observer be called on board to see that the speed rule is not infringed, but that the observer is not to help in any road stoppage in any way, nor is he to make notes of mechanical stoppages, and that if after one warning from your observer the driver continues to disregard the speed limit he shall be disqualified.

You will see that there is nothing in these rules which upsets No. 11 in your article, and as regards No. 10 I do not think that it would be advisable to have different drivers handling the car each day, because it would be rather hard on the manufacturer, for two reasons. First of all he would have to take a good number of skilled drivers (and these are not to be found every day), and, secondly, a car would run better in the hands of one competent man than in the hands of six incompetent men.

Doubtless these hints of mine for the Tourist Trophy Race will seem rather revolutionary, and in a way they are an endeavour to form some sort of junction between the present Tourist Trophy Race and the reliability trials of 1900, which was splendidly organised by Mr. Claude Johnson, and was, I consider, the finest advertisement the motor industry ever had in England.

C. E. Whittaker



THE tri-car competition organised in Paris by *L'Auto* is announced to take place on September 10th.

To the Right or to the Left, is the question which has arisen in America over the Vanderbilt Cup race course. Official views are in favour of traversing the course to the left, as some of the worst corners would have to be taken on the down grade if the race were run to the right.

SPA automobile week, postponed from August until September, it is now announced, has been altogether abandoned.

ONLY last week we recorded severe accidents in America, whilst racing on the track, to Barney Oldfield and Earl Kiser, the latter's accident occurring when competing against Webb Jay on a White steam car. Webb Jay himself is the latest victim to the use of utterly unsuitable tracks for high speed cars. On Saturday last at Kenilworth, Buffalo, U.S.A., when trying, on his White car with which he made the record time for the mile, to lap Burman and Lyttle, he charged the barriers full tilt, owing to the blinding dust of his opponents, and came utterly to grief. At the time of going to press Jay is reported as so badly injured that very little hope of saving his life is entertained.

SCENES ON THE GLIDDEN TOUR.—A race between two 15-hp. White cars near the Berkshire Hills, U.S.A. By the scenery, the photograph might easily be mistaken for a Berkshire lane in Great Britain.



MOTOR BOATING.

The British International Cup.—The full British team for this event has now been finally selected by the Motor Yacht Club as follows:—Napier II. (Hon. J. Scott Montagu and Mr. Lionel de Rothschild), Napier (Lord Howard de Walden), Brooke I. (Mr. Mawsdley Brooke and Capt. Corbett). There will be no reserve boat. As the direct result of the eliminating trials, Competitor was obviously entitled to a place in the team, but Lieut. Mansfield-Cumming, R.N., found it necessary to withdraw his boat as he cannot get her ready in time, and for this reason Brooke I. is now in the team instead.

Certain modifications have quite lately been made in Brooke I., as the result of the really drastic experiments which this boat has been through lately. Everyone who saw the eliminating races will remember how "wet" Brooke I. was at full speed, and, in order to make life at the helm somewhat more bearable if less exciting, the deck forward has now been raised 12 ins.

Much stronger valves have been fitted to the engine, and the carburettor, instead of being entirely "automatic," is now subject to hand control. With the engine running at 850 revs. per min., the boat will attain a speed of 26 knots, and at 1,000 revs. per min. the estimated power of the engine is 425-h.p. Now that these alterations have been made, Mr. Brooke expresses himself confident of the boat proving herself in every way satisfactory—we can only hope that his confidence may be fully justified—when she is put to the final test in the Bay of Arcachon.

Lake Lucerne Meeting.—In spite of the many obvious attractions which Lucerne offers to the motor boat owner, but a very meagre list of entries was received for the race meeting on the lake which commenced on Saturday last. The meeting was nevertheless a popular success, as the general public made the racing an excuse for boating, every available craft crowded with visitors being

out and about on the water. On the first day, Saturday, the cruiser events were run off, the results being as follows:—

Series 1 (under 6½ metres) 51 kilometres.—1. Mendelssohn (Mutel motor) 2h. 13m. 54s. 2. Delahaye V. Nautilus (Delahaye motor), 2h. 18m. 23s. 3. Lanturlu (De Dion motor), 2h. 46m. 58s.

Series 2 (6½ to 8 metres) 59 kilometres.—1. Excelsior VII. (Picker motor), 2h. 26m. 31s.

Series 3 (8 to 12 metres) 68 kilometres.—1. Delahaye VI. Nautilus (Delahaye motor), 2h. 5m. 11s. 2. Tetu (Delahaye motor), 2h. 15m. 14s.

Extra Reglementaries.

Series 1, 59 kilometres.—1. Pertinsane (Panhard motor), 1h. 59m. 50s.

Series 2, 68 kilometres.—1. Mary Madeline (Panhard), 2h. 13m. 24s. 2. Roosevelt (Pucker-Moccand), 3h. 34m. 40s. 3. Habsbourg (Daimler), 4h. 18m. 15s.

The turn of the racing craft came on Monday, and scarcity of competitors in this class was more pronounced than with the cruisers. Legru-Hotchkiss did not attempt to start, leaving only Rapière and New Trèfle to fight out the battle. In order to provide a semblance of sport, therefore, the offer of the owners of Delahaye VI. to run as a racer was accepted. These three, therefore, were started, but mishap overtook Rapière when turning too sharply in the heavy wash made by M. Thubron's New Trèfle, the steersman being half blinded by the spray. She struck on a rock, smashing her screw, and knocking a hole in the boat. La Rapière very quickly settled down into deep water, fortunately, however, her crew were almost immediately rescued. This accident left New Trèfle an easy winner of the Lucerne Cup, in 2h. 47m. 57s. for the 114 kiloms., Delahaye VI. making a fine shewing for her class with 3h. 28m. 48s.

In an extra race for cruisers over a distance of 51 kiloms., Excelsior VII. was timed for 1h. 55m. 37s.

We recently published, as a frontispiece, a view of Lake Lucerne, and again this week we give another charming picture of that delightful holiday resort.

MOTOR CYCLING.

AUTO-CYCLE CLUB'S RELIABILITY TRIALS.

In the accompanying table we have summarised the results in our usual form, but the data at present available is unofficial. Comparatively few machines, it will be noticed, had engine troubles, but punctures were, as usual, very prevalent. Three retired on account of accidents through side-slip or collision, but some others were placed *hors de combat* by failure of their machines. Of these latter, however, No. 26, the Mototri-Contal, driven by Monsieur Gaston Rivierre, continued running unofficially after repairing the damage sustained on the first day, and No. 32, the powerful 12-h.p. Riley tri-car, also attempted to continue after once breaking down, only to fail again, however, by the frame giving way.

TABLE OF UNOFFICIAL RESULTS.

No.	Machine and Driver.	Performance.						Honiton Hill.	
		M.	Tu.	W.	Th.	Fr.	S.	1'3 Miles. Time.	Place.
CLASS I.—Single-seated cycles.									
	h.p.							m. s.	
1	3½ Brown (R. M. Brice)	P	—	—	—	—	—	3 25½	3
2	2½ Vindect (T. Woodman)	—	—	—	—	—	—	3 58	13
3	3½ Vindect† (W. H. Wells)	—	—	—	—	—	—	3 30½	4
4	3½ Quadrant (T. Silver)	—	—	—	R	—	—	—	—
5	3½ Ortona (J. B. Walford)	Pi	—	—	—	—	2	3 36½	5
6	2½ Werner (H. E. Blackney)	—	—	—	—	—	—	7 15	22
7	4 Werner (L. M. Young)	P S H	A3	—	H4	S H	—	—	—
8	3 Bradbury (J. Halte)	—	—	—	—	P	—	4 12½	15
9	3½ Rex (A. H. Bindoff)	—	A	5	S	—	—	4 33½	17
10	2½ Ariel (R. T. Harman)	—	P A	—	P6	P S	R	3 45½	10
11	5 Ariel (J. Penzer) ...	P	S	P	—	P S	—	—	—
12	2½ Phoenix (J. Van Hooydonk)	—	—	—	R	—	—	3 41	7
13	2½ Phelon-Moore (W. Milnes)	—	—	—	P	—	P	3 45½	8
14	3½ Phelon-Moore (R. Moore)	—	—	—	P	—	—	3 25	2
15	3½ Rex (W. H. Hayes)	S	—	—	—	S	S	3 45½	8
16	3½ Riley (A. V. Baxter)	P H7	S A	P	P8	P	9	3 54½	12
17	6 Riley (Allan Riley)	—	R	—	—	—	—	—	—
18	2½ Triumph (J. Marshall)	Wit hdra wn.	—	—	—	—	—	—	—
19	3 Triumph† (T. Hulbert)	—	—	—	—	—	—	2 45½	1
20	2½ Noble (W. G. Watts)	—	—	10	11	12	—	5 28	19
21	3½ Noble (J. C. C. Brodie)	S	—	—	S	S	13	4 2½	14
22	3 Singer (S. E. Pemberton)	S	—	—	—	—	—	3 39½	6
23	4 Barnes ...	Wit hdra wn.	—	—	—	—	—	—	—
24	3½ J.A.P. (A. E. Lowe)	R	—	—	—	—	—	—	—
25	2½ Ariel (Bond) ...	—	A14	—	—	—	—	3 52½	11
CLASS IIA.—Two-seated cycles, not exceeding 85 guineas.									
26	4 Mototri-Contal (Gaston Rivierre)	R	—	15*	—	16*	17	6 29½	21
27	2½ Mototri-Contal (C. Contal)	—	P	18	19	20	21	10 43½	23
28	6 Leader (E. Clark)...	—	—	R	—	—	—	—	—
29	4½ Riley (C. Potter)...	P	A22	23	N S	24	25	5 56	20
CLASS IIB.—Two-seated cycles, exceeding 85 guineas.									
30	6 Quadrant (H. C. Priest)	S	—	—	—	26	P	—	—
31	6 Riley (J. Browning)	—	—	27	28	29	—	5 23½	18
32	9 Riley (Deluke) (E. W. Walford)	—	R	—	—	—	—	—	—
33	10 Lagonda (W. Gunn)	S	N S	—	—	—	N S	4 27	16

EXPLANATION.

* Continued running unofficially. A Lost time owing to storm.
H Stopped on hills. P Puncture. R Retired. S Stoppage, cause unknown. NS Non-stop run.

CAUSES OF STOPPAGES WHERE KNOWN.

1 Replaced tube. 2 Broken balls in back wheel. 3 Tightened belt. 4 Ignition, engine trouble, and choked petrol pipe. 5 Broken plug. 6 Replaced tube. 7 Exhaust-valve trouble, new pulley. 8 Broken belt. 9 Changed exhaust-valve and accumulators. 10 Broke contact-breaker through side-slip. 11 Contact-breaker trouble. 12 Ignition. 13 No petrol. 14 Carburettor trouble. 15 Carburettor trouble. 16 Ignition and new spokes to wheel. 17 Broken bolts in back wheel. 18 Adjusting gears. 19 Accumulators run down. 20 New plug. 21 Lubricated gears and took in water. 22 Repair to frame. 23 Broken chain and exhaust-valve trouble. 24 Circulation and ignition. 25 Circulation. 26 New plug. 27 Lost water. 28 Took wrong route. 29 Lost water.

CAUSES OF RETIREMENT.

Nos. 4, 12, and 17 Retired through accidents to rider and machine. No. 10 Unknown at present. No. 24 Siezed piston. No. 26 Stripped gears. No. 27 Broken cam-shaft wheel. No. 32 Siezed gear when going up Birdlip, but after replacing parts continued unofficially and again broke down.

HILL-CLIMB.

No. 6 Restarted on hill. Nos. 7, 11, and 30 Arrived too late to be timed.

On Saturday, August 19th, twenty-four, out of the thirty-one machines which started, finished the six days' reliability trial which the club had been holding the previous week. Altogether 769½ miles had been covered, which entailed a daily run of considerably over 100 miles, to be repeated on six consecutive days—a trial well calculated to at least show up serious defects, and, even if not a direct proof of reliability, at least a sound indication of general good qualities.

Oxford, Worcester, Gloucester, Bristol, Exeter, Southampton, Brighton, Eastbourne and Folkestone were among the principal places visited *en route*, and occasionally the road ran over hills of no mean magnitude, the steepest of all being the famous Birdlip, which was encountered on the second day after leaving Gloucester. Dinsmore Hill, near Hereford, was made the penalty hill of the whole run, any machine not surmounting it losing marks. Times were taken on Reigate Hill and also on Honiton Hill, and the latter, being those only which are available, will be found in our annexed table of results. A brake test also was held on a hill just past Reigate, and a "stop and start" test for free engine machines was held on another hill which had a gradient of about 1 in 25.

The difficulty of organising and carrying out such a trial are very considerable, and great credit is due to Mr. Straight and other officials of the club for the excellent manner in which the whole arrangements were carried through without a hitch. The method of checking the machines was to provide a schedule time of running (within the legal limit) and a speed between controls of not less than 15 m.p.h. Any one going faster or slower than the limits imposed was liable to lose marks, but all those arriving to time had no marks deducted, no matter what stops they might have had on the road. In addition to this, however, a system of observation was also employed by which wayside troubles to bicycles were recorded when seen either by the observers on the tricars or officials of the club, and thus those competitors of Class I. who are not shown to have stopped may be considered as having had no trouble whatever, although they cannot, under the conditions, be *officially* accredited with having performed a "non-stop" run.

NEXT Saturday, September 2nd, the Auto-Cycle Club Consumption Trial is due, a start being made at 2 p.m.

ANOTHER penalty run is to be held by the members of the Auto-cycle Club and affiliated clubs on September 23rd. The route will probably be in the eastern counties, the competitors starting at 2.30 p.m. The entrance fee is 2s. Any competitor who makes a stoppage of any kind will be fined 6d., and any competitor failing to finish within the schedule time will be fined 2s. 6d. In any case the amount of the fines will be limited to 2s. 6d.

THE Auto-Cycle Club calls the attention of motor cyclists to the fact that under the rules of that club, any club or persons taking part in an open motor cycle competition for which a permit from the club has not been obtained, is liable to be suspended from taking part in any competition held under the rules of the club. The Motor Cycling Club has announced the holding of an open competition on August 26th, 1905. The Auto-Cycle Club, under date of August 16th, desire to point out that no permit for this competition has been granted by the Auto-Cycle Club.

AUTO-CYCLE CLUB RELIABILITY TRIAL.—A batch of the survivors on Saturday, the last day, ready to start from Eastbourne. *Photo by Campden-Gray.*

Motor Cycling on the Continent.—The secretary of the C.T.C. has just been informed officially that the motor bicycles of its members who wish to tour in France may pass the French Customs Houses without payment or deposit of duty—in fact, that in future, members of the C.T.C. may enter into France with their motor cycles under the same conditions as with ordinary cycles. This concession not only throws open France, but the whole of

Europe free of duty to the member of the Cyclists' Touring Club furnished with the necessary ticket, as members of the club have already been granted free entry with their motor cycles into Germany, Holland, Belgium, Italy, and Switzerland. Full information as to these important concessions may be obtained on application to the Secretary, Cyclists' Touring Club, 47, Victoria Street, Westminster, S.W.



The Progress of the "Pedrail."—Hitherto, the law in this country has stood in Mr. Diplock's way, and has prevented his wonderful Pedrail vehicles from being legally used on the King's highways, since they do not conform with the Local Government Board regulations that have hitherto been in force. That, however, is now changed, and Mr. Diplock is to be heartily congratulated that the Board, after having communicated with a number of the local authorities, and after having carefully considered the matter in all its details, have now issued the requisite Order authorising the use of Pedrail "locomotives" on highways. The actual Order itself, dealing as it does with a highly difficult technical matter, is very skilfully drawn up, and obviously shows, on the face of it, the care with which this clever invention has been studied by the Government officials concerned. Incidentally, too, the new Order is significant, inasmuch as it cannot but be regarded as giving some indication of the opinions that have been formed by those Government experts who have been deputed to conduct or to witness the practical tests carried out with Pedrail engines during the past year or two. Our readers are already familiar with the constructional details of the various experimental "Pedrails" that have been made, as also with the results of the successful trials conducted with them, and they will therefore learn with interest that Mr. Diplock has quite recently introduced some still further improvements in his designs, and that he intends building another "engine" very shortly. We wish him the success which his perseverance, and his plucky undertaking in the direction of revolutionising heavy road-traction, undoubtedly deserve. It will be remembered that the fundamental principle of these "walking" vehicles is that of causing the car to lay its own railway on any ordinary road—or even across the roughest or softest ground—and to glide along over it as smoothly and almost as efficiently as a train does on its permanent way.

Automobile Club Driving Certificates.—Examinations for obtaining the Club's driving certificate will be held in London on Tuesday next, the 29th inst. Application forms and all information can be obtained from the Secretary, 119, Piccadilly, W.

Emission of Smoke.—We referred recently to a case in which the owners of an automobile were summoned "for that their car was not so constructed as to consume its own smoke as far as possible." Mr. Denman, before whom the summons was heard, adjourned it so as to fully consider it, and has now given his decision. He decided to convict, stating that, in his opinion, the Act referred to some unforeseen accidental occurrence, not to something constant and recurrent, and he further held that the owners or persons "using" such car for their benefit, and not necessarily the actual possessors, are the persons upon whom responsibility as to using machines not constructed so as to practically consume their own smoke rests. With all due deference to Mr. Denman, and much as we think the emission of smoke tends to injure the automobile movement, we cannot regard his finding as legal, for, as we said last week, no indictment under the Motor Car Act can be framed as given above.



CLUB DOINGS.

Blackheath A.C.—To-day, Saturday, a joint meeting with the Kent A.C. has been arranged to be held on the private road in the grounds of Holwood, Keston, the seat of Earl Derby, entering by the Orpington Lodge gates of the park.

North London A.C.—The fixtures of this club in the near future are, starting each day at 3.30 p.m. from headquarters:—August 26th, Harpenden (George Hotel); September 23rd, Hertford (Green Dragon); October 28th, St. Albans (Peahen Hotel).

Meet of the Leicestershire A.C. at Mr. J. A. Corah's residence, Oadby Hill, Leicester, on August 12th.

A Recipe for Police Traps.—When setting a police trap be careful not to select the near neighbourhood of a market garden, for in such labour market gardeners and their assistants, who are at times honest men and stiff and sturdy under cross-examination. In the neighbourhood of such a garden on the Lower Shoreham Road was recently set a police trap, into which fell Mr. Stuart Peebles, while proceeding at a rate of about 14 miles per hour. The policemen, of course, swore that the pace of Mr. Peebles was, as usual, 30 miles per hour, no more and no less. Mr. Frith, who defended, however, produced in the witness-box a phalanx of the market gardeners and their men, who all swore that the car of Mr. Peebles was going so slowly that it was not even raising the dust. The Shoreham Bench, impressed by the rustic *bonâ fides* of the market gardeners and their labourers, dismissed the case. Had the witnesses been country gentlemen, University professors, or even Cabinet Ministers, the Bench would no doubt have believed the police, but in the eyes of the Shoreham Bench market gardeners and their labourers could not lie! "*O sua si bona norint agricolæ.*"

THE skulking blackguards who strew broken glass on roadways to injure motor cars and bicycles are so seldom caught, that universal regret will be felt that one Arthur Leonard Phipp, who was detected indulging in this amusement at Bishop Stortford recently, should have been let off with a fine of only 16s.

MR. EDGAR WILSON, who has devised an alleged flying machine, and who was prevented some time back by the police from attempting to put it in operation from the parapet of Westminster Bridge, has been making an attempt with it at Wembley Park, where an experimental stage for the purpose was rigged up by the edge of the lake. When launched, the flying machine took a header direct for the water, and did about as much flying as would a stone dropped from the same place. But Mr. Wilson remained aloft stuck in some tackle, and was ultimately rescued and brought to earth not without difficulty. He says: "Once I solve the principle of balance, and have got a suitable motor to propel the machine, the rest will be easy." It will, no doubt, for that is nearly the whole of the problem.

Alterations of a sweeping nature are being made in the annexe at Olympia for the November Show of the Society of Motor Manufacturers and Traders. That the interests of exhibitors in the new annexe are being well provided for is clearly demonstrated by the above two photographs secured recently, showing the "gutting" process which is in progress.

H.M. King Edward's 40-h.p. Mercedes Car in the Hotel Yard, Marienbad.

A CERTAIN Capt. Beresford recently wished to take his car into Cardiff Docks, but as it contained petrol he was not allowed to take it inside the dock gates. To get over the difficulty he ran the petrol out into a bucket, and poured it down a gutter-sink in the street. The ultimate result was—some time subsequently—an explosion and fire, the “flames shooting up nine or ten feet into the air,” and very much frightening Policeman Rowse. Summoned for thus dealing with his superfluous petrol, Capt. Beresford was let off on payment of costs of the proceedings. But we trust he now realises what a very silly thing he did.

Smart and quaint are the new ideas which so continuously emanate from the firm of S. F. Edge, Ltd., in bringing into prominence the many useful innovations which they introduce. The above “medal” is the latest of these to hand, which is presented with each Speedometer purchased from them, so that the owner can hang it on his car and exhibit it to over-zealous constables, as a silent talisman, to moderate the somewhat distorted views usually held by them of the speed of carefully-driven cars.

PHOTOS BY LIEUT. W. WINDHAM.

The King's first ride at Marienbad. This photograph was taken by Lieut. W. Windham, who afterwards accompanied His Majesty in his car to Glatzen, Saugenberg, and Podhomburg.

A MILITARY automobile corps for the German Army has been created by the Emperor. It consists of 33 automobiles, will be commanded by Baron von Brandenstein, the President of the German A.C., while Prince Henry of Prussia is Colonel-in-Chief. All the cars are to take part in the military manœuvres between Frankfurt and Coblenz to be held early next month.

EVERYONE will feel sympathy for the Queen-Mother of Italy with regard to the accident of which she was the victim, near Aosta. Her Majesty was travelling at considerable speed when her car ran into a heap of stones, which it is believed in some quarters was purposely placed there by anti-automobile-monomaniacs. The car was smashed up, but, fortunately, neither Queen Margherita nor the other occupants were injured.

One of the Motor Omnibuses which have been doing such good work in Birmingham for some time past, was recently fitted with a 27-h.p. Maudslay motor in order to give that type of engine exhaustive trials under the precise conditions that prevail in that city. Our illustration shows this vehicle while undergoing these trials, which were undertaken with a view of giving the Maudslay Motor Company an order for some of their complete omnibuses. The 27-h.p. engine is of the three-cylinder type, having a bore and stroke of 5 inches, full particulars of which were given by us in an illustrated description of the Maudslay vehicles on February 11th last.

THE inquest at Newhaven on William Collins, the chauffeur who was killed through the accident to Mr. Brown's racing car at Brighton, was further adjourned on Monday for two months, owing to Mr. Brown still being detained in hospital and unable to attend.

THE anti-motorist Swiss agriculturist who assaulted Mr. George J. Gould near Kussnacht for being in an automobile, has recently been convicted by the Court at that place. He has been let off with one day's imprisonment and a fine of one franc, but he had to pay costs to the amount of 160 fr.

INNOVATIONS to be made in connection with the Paris Automobile Salon, in December next, are: (a) A competition for hackney cars (electric, petrol and petrol-electric); (b) an exhibition of designs by leading artists for improving the appearance of cars, some tempting prizes being offered to successful competitors.

WE desire to remind our readers that the 30th inst. is the last day for re-registration of *heavy motor cars which were registered prior to March 1st, 1905*. No such vehicles which have not been re-registered by that date can be legally run subsequently, and owner and driver will both be liable to prosecution.

LORD PORTSMOUTH is an enthusiastic motorist, so, having discovered a police trap on the outskirts of his Hurstbourne Park estate, he put up a number of notices to this effect:—

"Motorists Beware! Police Trap.—Portsmouth."

Nevertheless a number of motorists fell into the trap, from which it may be concluded that they were unfamiliar with the aristocratic style of signature and imagined that the police were ambushed near the town from which his lordship takes his title, and which is not very distant!

SCOTTISH RELIABILITY TRIAL.—The gold medal and reverse issued by the Scottish Club in connection with their Reliability Trial held a short time ago. The particular medal from which our photo was taken was secured by the 20-25-h.p. four-cylinder "All British" Ariel Car in Class C (petrol cars having three or more cylinders).

COMMANDER DAWSON, R.N., who is interested in the Missions to Seamen, writes to the papers, from 11, Buckingham Street, W.C., asking for a motor boat (or £300 to buy one), to be placed at the service of the Missions for boarding British sailing ships as they arrive in Hamburg, so as to be beforehand with the "crimps."

THE High Street at Epsom is, we learn, to be closed for repairs, subject to the weather being suitable, from August 28th to September 3rd, and it is satisfactory to know that the opportunity will be embraced of giving "Tarmac" a trial in that town. During the road repairing operations the traffic will be deflected to East Street, South Street, and along Warple Road as far as Heathcote Road.

"Should it ultimately be determined to substitute steam motor vans for street sprinkling instead of horsed vans, one motor van with a capacity of 1,000 gallons, travelling at a speed of five or six miles an hour, would be equivalent to possibly five of our present vans."

Such is the expressed opinion of Mr. W. N. Blair, surveyor of St. Pancras, in his report to the Borough Council.

ADDRESSING a meeting recently at Hawley, near Camberley, the Right Hon. A. F. Jeffreys, M.P., Parliamentary Secretary to the Local Government Board, took a very fair view of the motor car question, and expressed his confidence in the Royal Commission making a satisfactory report on the subject. He also pointed out that future legislation would be based on that report.

At a recent gymkhana at Yarmouth, an event was arranged in which the competitors were policemen. A car was run along a track, and five policemen guessed how fast it was going. Of course, the spectators thought that a fine object lesson would be provided. The policemen were, however, far too wily to be "hoist with that petard," and the highest estimate was 18½ m.p.h. The car was actually going at 27 m.p.h.

Lieut.-Col. Mark Mayhew, the Commander of the Motor Volunteer Force, at the steering-wheel of his 40-h.p. chainless Napier car. The car in which he is shown in the photograph is the very latest and most up-to-date four-cylinder type turned out by the Napier firm. It has been in constant use by Lieut.-Col. Mayhew since the spring of this year, and he christened it by a drive to Nice and back.

THE Duke of Ratibor has been unanimously re-elected President of the German A.C.

DR. McCLEARY, the Medical Officer of Health for Battersea, is an expert who fully recognises the insanitary effects produced by horse traction, as he recently declared that

"Future generations of Londoners will find it difficult to believe that such a disgusting state of things was tolerated at the beginning of the twentieth century. The disappearance of the horse from the streets of London would be a sanitary reform of the first magnitude, and anything, therefore, which tends to improve and cheapen mechanical traction tends to improve public health."

WE wish when magistrates undertake to lay down the law that they would take the trouble to previously study it. This remark is based on a report to the effect that Mr. Reynolds, the magistrate sitting at Highgate Police Court, informed a defendant who was brought before him on the usual charge, and whose licence was fixed on his car, at present at the seaside, that he could be fined £10 for not producing it. Was anything so preposterous ever heard of? What the law says is that where a driver is convicted he shall be liable to a penalty if he does not produce his licence for the conviction to be endorsed thereon within a reasonable time. He is no more obliged to bring it into court with him before conviction than to take it to bed with him at night, or hang it round his neck when bathing in the sea. The police very frequently try to induce a defendant to produce his licence in court before conviction, in order that the magistrate may see if there are any endorsements on it, but they have no legal right to compel this, and every defendant may justifiably refuse to produce it under such circumstances.

It is a great convenience on a car to carry the main supply of lubricating oil in a special tank, and to be able to refill the lubricator on the dashboard from it without having to actually handle the oil at all. The above illustration shows the supply tank and the special semi-rotary pump which are now fitted to Napier cars for this purpose. They can be fixed in any convenient positions. When connected up together, and to the lubricator, a few strokes of the hand-pump enable the lubricator to be refilled at any time. The arrangement forms just one of those simple little devices which appeals so forcibly to the owner of any car.

OWING to the delights accompanying the laying-down of new tram-lines, traffic through Kingston has been diverted from the London Road to the Liverpool Road, an enlivenment of their solitude which some of the Liverpool Roadians do not appear to appreciate, as no less than sixty Blakey's Boot Protectors, with the points in the air, were picked up on a recent Sunday morning, carefully and equably distributed upon the surface of the Liverpool Road.

A GENTLEMAN, whose name we do not give, as we have no desire to pillory him as an idiot, went out the other evening, in a town not many miles from London, to look for a leak in a petrol tank with a lighted candle. *He found it*—and when a police constable found *him* he was burning away as merrily as any of the human sacrifices with which Nero is said to have emphasised his dislike of early Christianity. Fortunately he was not fatally, although seriously, injured.

RECOGNISING the importance of providing training schools for motor car drivers, the Technical College sub-committee of the Bradford City Council has determined to organise classes for this purpose in connection with the technical college of that town. The City and Guilds of London Institute also proposes to add to its programme a syllabus on motor car engineering, the courses to last two years and examinations will be held at the end of each year.

A new type of De Dion-Bouton heavy or commercial vehicle. Formerly these vehicles were fitted with steam engines, but about two years since the manufacturers decided to give up steam, and have from that time fitted petrol motors exclusively. This particular vehicle has a 15-h.p. 4-cylinder motor, sliding pinion gear, patent metal-to-metal disc clutch, and the regular De Dion-Bouton cardan axle drive. The carriage body is constructed to carry 20 persons. It was made to the order of, and is run by, Mr. E. Poulain, of the Haven Hotel, Sandbanks, Parkstone, Dorset. Mr. Poulain writes: "The 'bus does 8 trips a day over 70 miles, and every trip has been exact to the minute. The mechanical part is admirable. Since the 15th April, when we set out from Paris, the machine has travelled every day, and we have not had a single difficulty, after having covered 6,500 miles."

COMMERCIAL POINTS.

The Prince of Wales' Indian Tour.—For the use of the Prince of Wales during his forthcoming Indian tour, one of the Indian Maharajahs has secured for His Royal Highness a Fiat car. For this lengthy journey Dunlop tyres have been specially selected.

In the recent trip from London to Paris, undertaken by Mr. Louis Carle, of the Mors Company, on a 24-h.p. Mors car, this company write that the Continental tyres, with which the car was fitted, not only gave no trouble whatever, but although some of the roads were in an extremely bad condition, the tyres look as if they had been driven on a wooden pavement. We also learn that in the recent Herkomer Trophy competition the cars securing 1st, 2nd, 3rd, and 4th places were fitted with Continental tyres, and that out of the first 12 winning cars 10 were fitted with Continentals.

QUITE a number of motor omnibuses are now being turned out by the Great Eastern Railway Company at their Stratford works for use as feeders between the outlying districts in the vicinities and the nearest stations on their line. These vehicles, which are of the chain-driven type, have 4-cylinder engines of about 30-h.p. Like the Mors omnibus which was conspicuous in the recent French trials for absence of tyre troubles, and like the omnibus purchased by H.M. the King for use at Osborne House, they have Sirdar tyres on all four wheels.

DIXI MOTORS, LIMITED, advise us that they are sole agents for Great Britain and the Colonies for De Mirovitch's patent motor goggles.

For the Tourist Trophy Race a tyre of a new pattern—the "Modele de Course"—has been brought out by the Continental Tyre Company, who inform us that, as a result of the 100-guinea cup, offered by them in connection with that forthcoming event, about half the competing vehicles will be shod with Continental tyres. The other tyre makers are also making arrangements to supply specially suitable tyres for the race, and it is therefore to be hoped that *this* element of luck will be largely eliminated in the contest.

NEW COMPANIES REGISTERED.

De Cadignan Resilient Wheel Company (Limited).—Capital, £25,000 in £1 shares. Object, to acquire the business of the Société de Cadignan et Cie., of 28, Avenue de Neuilly, Neuilly-sur-Seine, France, hitherto carried on by G. E. de Cadignan, of wheel and tyre manufacturers and vendors, motor car builders, &c. First directors, J. G. Dalzell and G. E. de Cadignan.

Gaulois Tyres (Limited).—Capital, £20,000 in £1 shares. First directors, J. P. Gauthier and T. Schneider.

Wilton-Cox Motor Tyre Company (Limited), 76a, Suffolk Street, Birmingham.—Capital, £5,000 in £1 shares.

BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

18384. 23rd July, 1904. Improvements in and relating to Self-Propelled Vehicles and Vessels. Percy Martin, of the Daimler Motor Company, Limited, 219, Shaftesbury Avenue, W.C., and Dick Kerr and Company, Limited, 110, Cannon Street, E.C. This invention relates to power transmission in self-propelled vehicles. In applying internal combustion engines to vehicles for road or railways, especially where great tractive efforts are necessary, it is essential that means be provided to allow of large starting efforts, a variable tractive effort and speed, and reversal of motion. There are six figures.

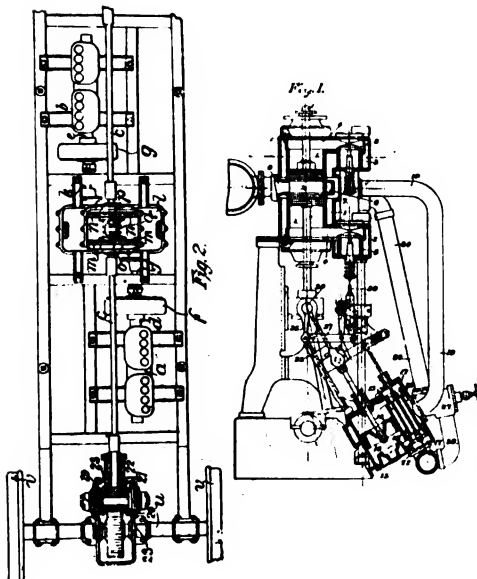


Fig. 2 is a part plan. Two internal combustion engines, *a, b*, are placed one on each side of a longitudinal shaft, *c*, with their crank shafts, *d, e*, parallel to the shaft. On the crank shafts, *d, e*, are mounted two main clutches, *f, g*, operated by levers whereby the engines may be put into or withdrawn from engagement with the transmission gear without shock. The engines by means of the clutches, *f, g*, drive two intermediate shafts, *j, k*, in a gear box, *l*, between the engines. On each of the shafts, *j, k*, are mounted a small and large pinion, *m, n*, respectively; the smaller pinions, *m*, are permanently

geared to the larger, *o*, of the gear wheels, *o, p*, which are loosely mounted on the longitudinal shaft, *c*, the larger, *n*, being permanently geared to the smaller gear wheel, *o*. By means of a two-way clutch, *q*, either of the gear wheels, *o, p*, can be locked to the longitudinal shaft, *c*, causing the shaft to rotate at a speed depending on the ratios of the gearing. The longitudinal shaft, *c*, drives the axles, *u*, of the driving wheels, *v*, at both ends of the vehicle, reducing gear and reversing gear being provided in close proximity to the axles. The control of the vehicle is effected by means of levers on controlling pillars mounted at one or both ends of the vehicle. The reversing mechanism at each end of the vehicle comprises two bevel wheels, *19, 20*, loosely mounted on a countershaft, *21*, and engaging with opposite sides of the bevel wheel, *22*, at the end of the driving shaft. A clutch, *23*, is mounted on the countershaft, and causes the forward or backward movement of the vehicle by clutching the one or other of the two bevel wheels fast to the countershaft which drives the axle of the wheel through the reducing gear. August 3rd, 1905.

11871. 26th May, 1904. Improvements in and connected with Internal Combustion Engines. John Clay, 30, Hamilton Square, Birkenhead, and Somerville Goodall, 58, Shaftesbury Road, Birkdale. This invention has for its object an engine which is self-starting, reversible and controllable as to degree of energy or power, and is simple in its construction and mode of operating the parts. It is described as applied to an engine having three cylinders, with cranks at about 120 deg. from one another, and adapted to give a propelling stroke at each end of the cylinder, each revolution. The oil is forced into the ends of the cylinders or combustion chambers, mixing with the air therein, while the piston is returning and compressing. When the compression at each end is effected the charge is ignited by suitable igniters. There are eight figures. Fig. 1 is a side elevation partly in section. Each cylinder, 1, has connected with it two lift valves, 2, one at the top and the other at the bottom, the casings, 3, of which communicate by ports, 4, with the two ends of the cylinders on the opposite ends of the piston, 5; whilst at the centre of the cylinder there is an annular exhaust port, 6, communicating with it by a number of openings in the cylinder wall, and through which the exhaust of the gases at the ends of the strokes of the piston takes place in each direction. That is, the exhaust port, 6, is common to both ends of the cylinder, and the piston uncovers and closes it alternately at the opposite ends of its strokes in the well-known way. In connection with each cylinder there is a valve casing, 7, with a piston valve working in it, and communicating at its two ends with the valve casings, 3, below the valves, 2, by ports. This valve is for controlling the distribution of air supplied to the cylinder by an air pump. There is also connected to the cylinder a similar casing having a valve for controlling the flow of combustible mixture to the opposite ends of the cylinder, the mixture being supplied by a force pump. In their flow the air and the combustible mixture uplift the spring-

held valve, 2, which acts as a non-return valve to both, and cuts off communication between the interior of the cylinder and the valve ports. The combustible mixture is supplied by its pump, and is adapted to be admitted by its valve at a point when the piston, 5, is at about a half or three-fourths of its compressing or inward stroke, the mixture being forced in under a force of about 5 to 10 lbs.; 15, represents the air pump cylinder. 16 its piston, 17 the valve casing and 18 the distribution valve therein, and the air in this pump is forced up into the cylinder valve casing, 7, through the pipe, 19, which connects the pump valve casing and the valve casing, 7, together. The combustible mixture or fuel pump is of the same construction as the air pump; 22 is the distribution valve casing, which has an ordinary piston distributing valve. This valve casing, 22, and the cylinder valve casing at the centre are connected together by the supply pipe, 24, the supply to the valve casing, 22, from the mixture service being by a pipe, 26, on one end of the casing, 22, the mixture being supplied to the opposite ends of the casing, 22, through the valve itself which is hollow. A spring-pressed relief valve, 27, is provided on the supply pipe, 24, by which when pressure in the mixture pump exceeds that required escapes back by way of the by-pass branch, 28, into the inlet or suction pipe. The valves in the valve casing, 7, are operated from the ends of the projecting parts, 30, of the crosshead pin, which works the pump connecting rods, 32, and the two ends of the crosshead pin projections, 30, operate by connecting rods, 35, levers, 37, connected with the mixture valve and air valve spindle, 39. The reversing of the engine is effected by a valve placed on the side of the cylinder, and connected with the cylinder above and below the piston and also with the exhaust port belt, 6, of same. This valve is worked by an eccentric and link motion, the link being operated, that is, thrown over in one direction or the other or held in the centre by a suitable hand-operating lever. August 3rd, 1905.

Patent Specifications Published.

Applied for in 1904.

Published August 10th, 1905.

- 15,926. H. L. SCHAFFNER. Brakes
26,527. A. ECKSTEIN AND H. J. COATES. Electric ignition apparatus.

Applied for in 1905.

Published August 3rd, 1905.

- 7,711. F. LAMPLOUGH AND ALBANY CO., LTD. Radiators.
8,412. MASCHINENFABRIK G. LUTHER. Cooling valves.

Published August 10th, 1905.

- 2,782. O. RICHARDS. Gearing.
8,919. MARQUIS A. DE DION AND G. BOUTON. Ignition devices.
9,136. G. VILLE. Clutch mechanism.

The Automotor Journal, September 2nd, 1905.

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OUR CANALS.—A view on the Basingstoke Canal, recently acquired by Mr. Carter, showing children playing in the bed of the canal. The derelict canal barge will be noticed, at the side, slowly crumbling to pieces.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.		
Sept. 2	...	100 Miles Motor Cycle Trial (Southern Motor Club).
Sept. 2	...	Skegness Races on Sands (Notts A.C.).
Sept. 2	...	Auto Cycle Club, Consumption Trial.
Sept. 4-5	...	Saltburn-on-Sea Sand Races.
Sept. 9	...	Brown Cup (Motor Cycling Club).
Sept. 9	...	Hill Climb, Cars and Cycles (Southern Motor Club).
Sept. 14	...	*Tourist Trophy (Isle of Man).
Sept. 15	...	*Daily Graphic Cup (Isle of Man).
Sept. 16	...	Hill Climb, Tricars (Southern Motor Club).
Sept. 18	...	*Van Trials.
Sept. 20-21-22	...	Motor Boat Burnham-on-Crouch (B.M.B.C.).
Sept. 23	...	Scottish A.C. Hill Climb.
Sept. 30	...	Auto Cycle Club Race Meeting, Crystal Palace.
Oct. 4	...	*Speed Trials.
Oct. 7	...	Scottish A.C. 100 Miles Run.
Oct. 14	...	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17	...	*Quarterly 100 Miles Trials.
Nov. 17-25	...	Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.		
Sept. 2-10	...	Brescia Automobile Meeting.
Sept. 3-10	...	Royan Meeting.
Sept. 10	...	Tri-Car Competition (L'Auto).
Sept. 10	...	Vincenzo-Florio Cup.
Sept. 11	...	British International Cup (Motor Boats Arcachon).
Sept. 16-17	...	Ventoux Hill Climb.
Sept. 19	...	½ Litre Consumption Trials (Motor Cycles).
Sept.	...	Motor Bicycle Race (French Ardennes).
Oct. ...	...	Vanderbilt Cup.
Oct. 1	...	Chateau Thierry Hill Climb.
Oct. 15	...	Gaillon Hill Climb.
Nov. 3	...	French Voiturettes Trials (L'Auto).

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

A Ministry of Roads and Bridges.

WE have often said before, and we shall often, we fear, have occasion to say again, that one of the main requirements of future social and industrial progress in this country is a revolution in administration which will amount either literally or in effect to the creation of a ministry of roads and bridges, corresponding to the Ministry "des Ponts et Chaussées" of the French Republic, from whose management of affairs in many departments we have still in this country much to learn. The absurdities of the present chaotic regime—we cannot call it system—are simply unworthy of a civilised nation. The roads are the property of the nation at large, and one of its most valuable properties too, and

to surrender the management of them into the hands of innumerable independent local authorities whose maximum intelligence is as a rule that of the average farmer, and exceptionally that of the intelligent farmer, is a ludicrous method of mismanaging a national property. It is only now, when traffic is really beginning to come back to the roads in any real measure, thanks to the automobile movement, that people are beginning to realise the huge mistake that was made when in the early seventies the old turnpike system was abandoned. The turnpike system made the people who used the roads pay for them, and what was of more importance, as they made the construction of roads a thing from which private capital could obtain a return, promoted enterprise in that direction. It had serious disadvantages, no doubt, and could in no way suit present day conditions of traffic, but when it was abandoned it should have been abandoned in favour of a central administration and control, and not for the purpose of enabling the whole locomotion of the country to be dislocated by the wisdom of Gotham and Little-Peddy-in-the-Pound.

The imaginative picture which was drawn for the Munich Banquet menu in connection with the recent German Automobile week by Professor Herkomer, and which we reproduce this week, illustrates "The future bound to the automobile movement." The future *is* bound to the automobile movement, and the automobile movement is bound to the roads. No adequate progress will be possible till we have our roads controlled by a competent central authority, preferably a Government Department of the same standing as the Board of Trade and the Local Government Board—and the compeer of the Ministry "des Ponts et Chaussées." It certainly marks a step towards the realisation of this desirable end that a paper of the influence and standing of the *Daily Mail* should be devoting a series of well-informed articles to the subject, clinched by a leading article advocating the above solution.

Assisting the Joint Committee.

It will be a long time before all the points in which the automobile public can be of assistance to the Joint Committee, which is now arranging for the evidence to be placed before the Royal Commission, will be exhausted. We do not propose to make an extensive list of them, but to deal as occasion presents itself either with such matters as our readers may be in a position to furnish information about, or such as it may be well for them to bear in mind and fully consider.

One of the by no means less important considerations resulting from the oppressive manner in which the Acts have been administered is the effect on the automobile industry. The large number of summonses issued, the preposterous proportion of convictions to accusations, the practical certainty that every motorist summoned on the usual charges will be fined, and, above all, the high figure of the fines inflicted have had in many cases a decidedly deterrent effect in the case of people contemplating purchasing automobiles and becoming automobilists. The Joint Committee is most anxious to obtain statistics and information on this point, and we would recommend everyone, therefore—and there must be a considerable number of such people—who have for some time past considered whether they would become automobilists or not, and who have determined, at any rate, for the present, not to do so for the above reasons, to write to the Joint Committee stating that that is their

position, or giving instances of others whom they know to have been so deterred.

There are many cases also in which owners of cars have either practically given up driving or have sold their cars off and abandoned automobilism altogether for the same reason. Information of such cases would also be of the highest value. Nothing could be better calculated to impress the Royal Commission as regards the desirability of alterations in the law, and above all in its administration, than facts of this kind.

♦ ♦ ♦
Pay, Pay, Pay.

We have pointed out in the past other ways in which individual automobilists could be of the greatest assistance to the Joint Committee. We have now indicated two more. Both in drawing attention to our previous suggestions, however, and in the present instance, we would remind everyone that over and above assistance of that kind there is the even more important form of assistance consisting of contributing to the funds. The Committee *must* be adequately supported with funds for the campaign it has to carry out. A good beginning has been made, but it is a beginning only. Every automobilist should look upon the fund as an insurance fund against future annoyance, irritation, and police-court persecution, and, further, as a fund, the wise expenditure of which will ensure the satisfactory future development of the automobile movement.

The Light Delivery Van Trials.

As announced by us when going to press last week, the Light Delivery Van Trials arranged by the Automobile Club have again been postponed, this time till next year, the postponement being due to the small number of entries which had been received. It is to be hoped that the apparent disinclination of British manufacturers to enter for the trials will not be misinterpreted either here or abroad. To a large extent, no doubt, the smallness of the number who thought it worth while to announce themselves as competitors was due, as we observed last week, to the fact of the date for the trials being arranged so soon after the Tourist Trophy in the Isle of Man, and continuing to so near the Exhibition. But it is also to a large extent due to the circumstance that most of the manufacturers of commercial vehicles in the country are now devoting themselves to turning out motor 'buses, for which the demand is, at the present moment, largely in excess of the supply; and motor 'buses, or chassis suitable for motor 'buses, were excluded from the trials by the limitation of the competing vehicles to those designed for 30 cwt. loads. In fact, at the present juncture, the trade is not anxious for any such trials at all. So far, therefore, from the small number of entries this year being an unsatisfactory symptom, it is, on the contrary, an indication of thoroughly promising trade conditions. Any attempts to draw the conclusion, from comparison with the large number of competitors which took part in the recently held French commercial vehicle trials, that the English commercial industry is in an unsatisfactory state would, therefore, be wholly unwarranted.

It is to be hoped that the postponement till next year will enable the club authorities to some extent to reorganise the trials. It would, we think, be advisable to reconsider the restriction as regards the weight limit, so as to enable either motor 'buses, or chassis designed

with rubber tyres for motor 'bus purposes, to compete. The restriction was, we believe, imposed with an idea that the heavier vehicles would unduly injure the roads in the immediate neighbourhoods of the selected dépôts, but motor 'bus chassis, shod as they are with solid tyres, are not by any means destructive vehicles, so that there is no reason on that account for their exclusion. The date, too, must be arranged so as not to clash with other important events. If such modifications are made, there is every reason to believe that the number of entries will be thoroughly satisfactory, and we hope, too, that by next year even more will have been done in the way of building special vehicles of a light character for delivery van purposes.

A Matter for the Metropolitan Police.

ONE of the most jovial sights of the old days of horse 'bus enterprise in London, before the great companies settled down to a state of mutual amity, armed neutrality, or whatever else they may term the condition in which they now live with one another, was to see three 'buses coming along generally driving at a high rate of speed, if not actually racing with one another, and all carrying about three passengers each. Generally two of the 'buses belonged to some powerful company, and the third—the victim—was owned by some rival, and was being "nursed" off the road, by being as far as possible constantly kept in the middle between its two persecutors. What induced the police to wink at this sort of thing, as it generally meant furious driving on an elaborate scale, probably only the great 'bus companies themselves could tell. There now appears to be a possibility of a revival of this absurd method of omnibus rivalry in connection with the vehicles of the London Motor Omnibus Company, who are running the justly popular line of "Vanguard" motor 'buses. A mild reminder of how disastrous such proceedings could easily become in the case of motor 'buses is provided by the case of a motor 'bus which ran full tilt into a street refuge in Oxford Street recently. The honours between the refuge and the 'bus were fairly divided, as the refuge lost two iron posts and a lamp-post, and the front of the motor 'bus was badly damaged—not so badly, however, but that it could crawl home to its garage, while the passengers "escaped with a shaking," something of a fright, and a good deal of irritation. We do not for a moment believe that such tactics will succeed. But we call upon the Metropolitan police to stop even the semblance of "nursing" at once. Bad and dangerous as these were with horse 'buses, with motor 'buses they form an absolute menace to the public safety, which must not be tolerated for a moment—all the more so as under the Motor Car Act the police have ample power to stop it, since it involves driving to the danger of the public in the fullest sense of the term.

Impartiality.

MOTORISTS have often to complain of partiality in the treatment to which they are subjected in the British Islands. If they betake themselves to Switzerland, they will find that the most magnificent impartiality there reigns supreme—not to say rampant. There is one redeeming feature, the victims are not required to waste the greater part of a day in a more or less odoriferous police-court—they are simply fined on the spot by the policeman, gendarme, syndic, or whatever else he may happen to be, who is judge, jury, magistrate, prosecuting

solicitor, and material-witness-in-chief, all in one. You can even be fined as much as 30 francs in some places for going over 4 miles per hour. But the impartiality is the great thing! A recent traveller by motor, who made a canvass of his *confrères* at Lucerne could not discover a single one whom the authorities had forgotten to fine. This "fine" impartiality has, we understand, a most soothing effect. In this country, it is the uncertainty of the incidence of the police arrangements for accurately timing (!), summoning, and securing the conviction of motorists (the shorter word "trap" is no longer allowed), as well as the vindictive fines imposed, which prove so exasperating. The Swiss motorist knows that he will be fined regularly and fined often, though not fined much, and that there is no possibility of his best friend, who drives as fast or faster than he does, assuming an attitude of irritating superiority because *he* has never fallen a victim—and in that lies his consolation!

The Objectionable Exhaust Question.—Everyone having the interests of the automobile movement at heart must have recently recognised how important the elimination of smoky and objectionable exhaust from automobiles of all types is, particularly at the present juncture. The club and others have been to that end making reasonable suggestions to mitigate this undoubted nuisance—suggestions which probably without exception every true motorist will endeavour to live up to. It is therefore with a shock of very disagreeable surprise that we find an automobile contemporary giving publicity to a letter from an alleged member of the Automobile Club, making fun of the suggestions put forward by the Technical Committee for combating the nuisance, and embellished with several expressions of opinion which, to say the least, are in very questionable taste. Apropos of the club's proposal in regard to exhaust pipes, this "member" observes: "I guess that ninety-nine people out of every hundred will just leave their pipes sticking out where they are." Concerning the club's proposal to run motors in the garage before starting out so as to clarify the character of the exhaust, he ridicules the notion that "people who are in the habit of letting their motors send out clouds of smell are the sort of people who will take the trouble to run their engines during, perhaps, nearly fifteen minutes to avoid giving offence outside." Finally, this worthy "member" of the A.C.G.B.I. ends up as follows:—"I have no doubt that the T.C. of the A.C.G.B.I. will evolve more remedies in the fulness of time; or, if not, they might take turns and suspend themselves till the next Gordon-Bennett. In the meantime, let us thank them for their well-meant efforts." These are just the sort of sentiments that one would expect to be expressed by the type of "road hog," who has done so much to infuriate other road users against drivers of motor cars. Frankly, we disbelieve in the writer being a member of the Automobile Club at all. If he is, he should not continue to be so, but we should not be surprised to find that enquiry would prove that his assumption of membership is altogether unjustifiable, and that in private life he is one of the classes of driver who abuse their master's confidence by using their cars to tear along the roads to the danger and disgust of the public, while the employer supposes his property to be standing inoffensively at home. The letter is of the kind that should either have appeared over the signature of the writer, or not have appeared at all—preferably the latter.

CANALS AND MOTOR BOATING.

OUR CANALS.—One of the old locks near the Wesleyan Mission on the Basingstoke Canal, between Brookwood and Aldershot.

OUR CANALS.—A shady spot near Bisley on the Basingstoke Canal.

WE have always looked forward to seeing the canals and waterways of the United Kingdom, many of them, alas! derelict, utilised for motor boat tours or motor boat services, and now, as we pointed out last week, there seems a fair chance of one such experiment being made. The Basingstoke Canal has at last found a purchaser, and an up-to-date and go-ahead purchaser at that. For a long time this waterway, once the scene of considerable traffic, has been going from bad to worse. The company owning it got into liquidation, and what is almost if possible worse, into Chancery. The locks fell out of repair as the traffic diminished, and now in some of the reaches there is scarcely sufficient depth of water to float a boy's model yacht, and when, not very long ago, the canal, which includes a considerable amount of land on either side of it, was put up for auction at a reserve price of £20,000, not a single bid over that amount was obtained. It is a great pity. We remember when a

on between the Thames and Guildford. Proceeding for a couple of miles along the latter, a point is reached at which it is crossed by the London and South-Western main line, and here to the right between rows of beech, oak and pine diversified with gorse and bracken opens another waterway—the Basingstoke Canal. There are a few locks, and then a long stretch through fir woods varied by stretches of beech and birch, to the rapidly extending town of Woking. This stretch forms one of the most beautiful pieces of scenery in its way in any of the counties near London. The district through which the canal runs is necessarily flat, but the combination of woodland and water provides, as shown by the photographs which we reproduce, vistas of very distinct and particular charm. From Woodham to the other side of Woking, where the Brookwood Lock is encountered, is a long stretch without a single lock for about $3\frac{1}{2}$ miles, and then the locks come thick and fast again as the canal

OUR CANALS.—Two of the old Basingstoke Canal boats in ruins near the North Camp, Aldershot.

considerable and thriving traffic was carried on along this canal, not only by the time-honoured barges pulled by placid horses along the tow path, but many a time have we seen motor boats, in the days when the electric boat was in the ascendant, find their way up from the Thames.

It is no wonder that they did so, for a more beautiful waterway could hardly be imagined. Many of the habituaries of the Thames extend their tours up the Wey. After passing through the first lock where the Wey debouches into the Thames, they will find a double course open to them. One course (to the left) sweeps round under the wooded hills of Weybridge overlooking a wide expanse of alluvial meadow, while the other turns through a lock to the right. The former is the old Wey, the latter is the Wey Navigation Canal, along which traffic, sometimes to a considerable extent, is still carried

winds its way up past the county asylum, the celebrated crematorium, the Woking golf links, and the derelict prison, where Mrs. Maybrick was once incarcerated, to the table-land that runs from Aldershot to Basingstoke, which provides a magnificently varied stretch of woodland and wide-sweeping plain of over 20 miles in length, *with not a single lock.*

It is obvious that we have here what may prove the foundation not only of an admirable run for pleasure motor boats coming up from the Thames, but of a motor boat service which between Woking and Basingstoke might prove of the greatest possible value to the inhabitants, who at many points along the canal are very far removed from railway facilities, and would welcome a motor boat service capable of providing facilities for communication and goods traffic.

(To be continued.)

THE 40-50-H.P. RICHARD-BRASIER CAR.—PART II.

The Main-Clutch.

As already stated, the clutch is unlike that on any other well-known type of vehicle, although at first sight its main peculiarity is not necessarily evident. A good view of it is obtained in Fig. 4, which shows the central portion of the chassis from behind, and in this illustration the clutch is seen to resemble others of the leather-faced cone type. The inner member is—as on some other vehicles—carried on the projecting end of the crank-shaft, and the spring which brings it into engagement with the outer member is contained inside the boss, so that no end-thrust is imposed on the shaft when the clutch is in use. The sliding sleeve, by which the clutch-cone is withdrawn when the pedal is depressed, has, however, an unusually long range of travel, and is normally pressed forward by a weak spring (D), which is mounted about the pedal rock-shaft for this purpose. The sleeve is provided with six forwardly projecting pins, which pass through holes in the boss of the clutch-cone, and also engage—when the sleeve is moved to the end of its range forward—with similar holes in the flywheel member of the clutch.

A very light pressure of the foot on the clutch pedal is sufficient to overcome the action of the weak spring, D, and, therefore, to prevent the pins from locking the two members of the clutch rigidly together. The device enables the driver, however, to prevent any slip from taking place when the car has once settled down into steady running, since it is then only necessary for him to release the pressure of his foot entirely, and the pins slide forward into place like a jaw-clutch. The clutch, otherwise, operates in exactly the usual way, and although care must obviously be taken at first until one becomes accustomed to the arrangement, yet there is apparently little risk of much harm being done by liberating the pedal too suddenly, since the pins would be unable to enter the holes in the "driving" member if the relative speeds of the two parts were unduly high.

The clutch-fork is provided with small rollers for reducing the friction between it and the sliding sleeve that it controls, and these rollers are themselves mounted

on ball-bearings. Provision is also made for adjusting the position of the clutch-pedal to suit any individual driver.

Of very substantial construction—as seen in Fig. 4—are the universal joints that are fitted at each end of the shaft connecting the clutch with the gear-box. Their pins are not only of large size, in order to ensure large bearing surfaces, but are hollowed out for lightness and to retain a good supply of lubricating oil. In all cases the bearings are formed by easily removable bushes, which can therefore be replaced when they become worn, and it will be recognised in our illustration that the forward universal joint has a "cardan" form of outer member to allow for any longitudinal play of the shaft.

The Engine.

In the main, the design of the 40-50-h.p. engine (see Figs. 5 and 6) is the same as that of the smaller standard 4-cylinder models—the 12-16, 16-20, and 24-30—made by the same firm, the cylinders being cast in pairs, with the exhaust-valves on the left and the inlet-valves with the igniters on the right side. Above the valves, and also placed centrally above each cylinder, are interchangeable inspection-plugs, for which the special tool, A (seen lying on the frame in Fig. 4), is provided. Both the cam-shafts, with their gear-wheels, are enclosed in the crank-chamber, the main body of which is formed by a single casting, to which the detachable portions above the cam-shafts are bolted at an angle. Also enclosed in the casing is the centrifugal governor—on the front end of the inlet-valve and igniter cam-shaft—which is connected by the bell-crank lever,

B², and the rod, B³, with the throttle-valve in the carburettor. It is this governor, in conjunction with the hand-lever, B, on the steering-wheel, and the small pedal, B¹, that gives the *sole* control of the engine under ordinary running conditions. The lever, B, and the pedal, B¹, are both connected with the bell-crank lever, B², by the spiral springs visible in Fig. 5.

Quite a feature of the engine is the mechanism for facilitating starting, to which brief reference has already been made. Beneath the radiator—conveniently near the starting-handle—is a hand-lever, which performs

Fig. 4.—The central portion of the 40-50-h.p. Richard-Brasier Chassis, as seen from the rear.

Fig. 5.—The 40-50-h.p. Richard-Brasier Engine, fixed in place in the chassis; view from the right side.

three distinct functions simultaneously. It inserts the key that connects the handle with the crank-shaft, it retards the time of ignition, and it reduces the compression in the cylinders. It is for the second purpose that the rods, C', are led to the igniters, where they affect the "trip" mechanism by rocking a cam about its axis, as on previous Richard-Brasier cars, and it is for the third-mentioned purpose that the rock-shaft, E'—seen in Fig. 6—is fitted. The rock-shaft, E', which is normally stationary, carries forked levers that lie beneath each of the exhaust valves, and is so arranged in connection with an external cam on the rear-end of the cam-shaft that this cam can be made to rock it about its axis when the lever, E, is moved into its "starting" position. The cam has four projections, and, therefore, tends to lift all four exhaust valves during the first part of each stroke. A spring is introduced between the rock-shaft, E', and the cam to allow either valve to close when an explosion occurs in its cylinder. The compression is thus reduced in all four cylinders until the engine has got properly under way, and all risk of "back-firing" is automatically prevented.

The igniters, for which the current is supplied by a low-tension magneto, on

the opposite side of the engine, are made in two separate parts, the portion carrying the rocking member being bolted to the side of the combustion chamber, and the insulated contact-pillar being fitted in from above the head. The current can be cut off for stopping the engine immediately at any time by the switch, C, on the steering wheel, the switch short-circuiting the magneto. Contact is made as usual with each igniter by a chopper-switch of simple design.

A pump is used for circulating the cooling-water, but no fan is employed for drawing air through the radiator. This is, therefore, a departure from the practice adopted on the other Richard-Brasier touring cars, for which natural circulation on the thermo-syphon system is made to replace a pump, and a belt-driven fan is provided. The pump on the new chassis lies beneath the crank-shaft in front of the crank-chamber, where it is driven by spur-wheels; it is of the gear-wheel type.

As usual on this make of car, the excellent practice of marking off on the rim of the flywheel the proper positions for "setting" each valve and each igniter is retained.

(To be concluded.)

Fig. 6.—View of the 40-50-h.p. Richard-Brasier Engine, as seen from the "near" side of the chassis.



SOME time ago Mr. Hoyle, a motor car dealer of Brighouse, was convicted by the Bradford West Riding magistrates on a charge of driving a motor car at Shipley without having a rear light. As our readers will recollect, a Bradford City magistrate of the name of Mr. Henry Illingworth subsequently wrote to point out that he himself was in all probability the real delinquent, and it was clear that the police had made a mistake. The case was brought before the Home Secretary, and he has ordered Mr. Hoyle's fine to be remitted. Considering

the amount of trouble and annoyance Mr. Hoyle has been put to, this is an obviously quite inadequate compensation for such a miscarriage of justice, while what is the worse consequence of such a conviction, the endorsement on his licence still remains. We fear, however, that the only way for Mr. Hoyle to get that removed, if the justices who misconvicted him have not the common justice to order its removal, is to appeal to Quarter Sessions—needless to say, a somewhat expensive proceeding.

THE CHELMSFORD DOUBLE-DECK OMNIBUS.

THE first of the large steam omnibuses built by Messrs.

Clark
super-
condens-
water-
exhaust-
motor-
this
the

mounted on a neat instrument board that slopes forward from the footboard, as seen in our illustrations.

Although of very large size, the condenser is arranged so as to be unobtrusive, practically constituting, as it does, the front of the "bonnet." All the special "Clarkson" features are retained in the engine—the forced oil-feed to all parts, the floating piston-rings, the glandless stuffing-boxes, and the "Joy" valve-gear — and the same type of pumps as

The "Chelmsford" Double-Deck Omnibus Chassis. View from the "Off" Side.

flash type of steam generator, a down-flue —instead of a chimney —for leading off the fumes from the burner, and a fan to draw air through the condenser.

An extremely good general idea of this chassis is given by the four accompanying photographs, which show it from both sides, from the front and from behind, respectively. In this case, one engine alone is needed, and its cylinders project forward from the combined casing that forms the crank-chamber and the housing for the differential countershaft.

Front and Rear Views of the "Clarkson" Double-Deck "Bus Chassis.

The steam generator is placed beneath the raised

before are driven from the differential countershaft. Side chains transmit the power to the driving wheels, which are shod with solid rubber tyres of the twin pattern.

vehicles, the fuel used is there are no objectionable. The power available is considerably in excess of actual requirements, so that any hills met with in the London district can be mounted at full speed. Substantial construction, first-class workmanship, and careful attention to all such details as render self-propelled vehicles both durable and easy to manage, are some of the more important characteristics of these British-built machines.

View of the "Chelmsford" Chassis from the "Near" Side.

AERONAUTICS.

M. SANTOS DUMONT has been projecting his imagination into the future and, not long ago, contributing to the pages of a London magazine an interesting forecast of the aerial navigation of time to come. The article has been imaginatively illustrated, and some of the pictures present a striking resemblance to the illustrations which added to the attractiveness of Mr. H. G. Wells' "When the Sleeper Wakes." In fact, one cannot help thinking that M. Dumont's prophesying owes something to that wonderful exercise in constructive imagination. Certainly his illustrator does, and it is not without its significance that M. Dumont, one of the pioneers of the navigable balloon, is convinced that the ultimate solution of the flight problem will go to the disciples of the heavier than air principle. In the meantime M. Dumont is still going on with the designs of a huge navigable balloon, so he says, which is to have a capacity of 77,000 cubic metres of gas and an ascensional force of 93 tons. There is nothing, he tells us, fantastical in this. It will be 200 metres long and 28 metres in diameter, that is to say, if the stomach of the gas-vessel was reposing on the ground its back would be level with the top of a moderate-sized factory chimney. It is to have thirty propellers, each of them driven by a 100-h.p. petrol motor, and the gas vessel is to be made of twenty-six thicknesses of Lyons silk, regularly laid over one another and varnished. Thus the great airship will be driven forward some time or other by 3,000 h.p. and ought, M. Dumont informs us, to attain a speed of 60 miles an hour or more. Such an airship should be capable, he thinks, of carrying enough fuel to take it 4,000 kiloms. at reduced speed, and 1,000 kiloms., say twice the length of the Gordon-Bennett Race, at full speed.

M. Dumont lets his imagination rather run riot with a number of little refinements which the sceptic may be excused for looking upon as somewhat premature, as he is going to have a regular closed-in dwelling room with sleeping compartments, and while he is asleep his guests will look after the stability of the airship. "We shall dine. We shall watch the heavens become star-studded. We shall remain suspended between stars and earth. We shall awake in the glory of the morning. And days will follow days. We shall cross frontiers. Now we are soaring over Russia—it would be a pity to stop so soon—we make a loop, and return by way of Hungary and Austria. Here is Vienna! Start the propellers and change the direction—who knows we may not find a current which will carry us to Belgrade? But the morning has come again; we travel with the breeze to Constantinople! We have the time, and we shall always find the means of returning to Paris." Those words, "We shall dine," are really a master stroke, and show that M. Dumont has not resided in Paris for nothing. After giving free rein to his imagination in this way, M. Dumont sees, just like Mr. Wells, landing stages rising high above the general level of Paris, and then the day of the aeroplane will be near. In any case, M. Dumont has many of the qualities of a great writer—pre-eminent amongst them, needless to say, being imagination. And he has an eye for analogies. It is the first step in mechanical flight that he recognises as the most difficult, and he sums up his views in this pregnant passage: "The clumsy eagle! The other

day, at the Jardin des Plants, I was watching the strokes of its wings on a branch in its cage. As its clumsiness became more and more apparent, I congratulated, in secrecy, its Inventor and Maker, in that He did not have, to advise Him, when He commenced His first experiments, mathematicians in frock coats and high hats. Awkwardness and heaviness would have caused them to condemn in advance the eagles, just as awkwardness and lightness caused to be condemned the first steerable balloons." M. Dumont can hardly say much more about the future on the subject, and we would remind him, in the words of the Merry Andrew in "Faust":—

Der Worte sind genug gewechselt
Lasst uns nun einmal Thaten sehen!

For it is after all a good long time since he was last in the air.

M. SANTOS DUMONT perhaps recognises this aspect of the situation, and he is accordingly, we understand, bringing towards completion his new racing airship, as he calls it, of which the gas vessel is now complete. It will be 41 metres in length, and contain, when fully inflated, 190 cubic metres of hydrogen. It will be propelled by a 14-h.p. Peugeot motor weighing 27 kilogs., which has already been tested and worked excellently. The gas vessel of the new airship is very much more pointed than those of its predecessors, and we daily await news of successful experiments with it.

SINCE writing the above description this machine has been completed, and M. Santos Dumont has been flying about in it before, or rather above, admiring crowds (as usual) on the beach at Trouville. There he has been describing all kinds of figures in the air, sometimes over the land and sometimes over the sea, and sometimes coming down almost in the middle of the spectators on the beach. The new airship displays considerable capacity for proceeding against the wind, and, altogether, the preliminary trials made with it at Trouville are most encouraging.

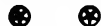
ALMOST contemporaneously an account comes from New York that Mr. Knabenshue, who, it will be remembered, made successful ascents with an airship at St. Louis, has been carrying out some evolutions over New York City, starting from Central Park, proceeding to Broadway and Forty-Second Street, and after circling about in the air, returning to Central Park. It is the first flight of an airship over the Metropolis of the U.S.A., and has occasioned considerable excitement, though critics who have seen it, notably Professor Briggs, are disposed to somewhat belittle the performance, comparing it with the drift over London executed some time back from the Crystal Palace. It would seem, however, that Knabenshue was really successful in going against a wind of some degree of power.

MR. EDGAR WILSON, whose adventures with his alleged flying machine, at Wembley Park, we chronicled last week, is not discouraged, but declares (in the daily papers) that he has continued daily trials *in privacy* over the lake, and on Wednesday in last week launched the "airship" off the high Watkin tower. He is now proceeding to equip the "airship" with a 6-h.p. petrol motor for flapping its wings.

MR. MARINAKIS, a Greek subject, is stated to have invented an airship in which the War Office is said to be taking such an interest that they have appointed a committee of officers of the Royal Engineers to inspect the working model as soon as it is completed. The inventor appears to be of opinion that he will be quite successful in inducing his airship to proceed against the wind.

THE airship of Count Almerico da Schio has been repaired, and the experiments with it continued, under the supervision of Sig. Hector Cianetti. The airship has been up in the air, and has made several satisfactory evolutions, demonstrating its manœuvrability. It is constructed, as our readers will remember, on what may be called Santos-Dumont lines, with a compensating ballonette inside the gas-vessel, and a hull constructed of tubes and steel wire, the motive power being provided by a 12-h.p. Buchet motor and a Tatin propeller, which is 4½ metres in diameter, and revolves at 300 revs. per min. The airship is said to have attained a speed of 30 kiloms. per hour.

FURTHER experiments were carried out a short time ago on the Seine with the more recent type of Archdeacon aeroplane, that in which, as we have already pointed out, the machine is duplicated, forming to all intents and purposes a huge multi-cellular kite. As in previous experiments, the aeroplane was mounted on floats which permitted of its maintaining itself on the surface of the water, and a speed was imparted to it for the purpose of raising it in the air by a cable attached to a high speed



A Travelling Workshop.—It is in accord with the true spirit of automobilism that if the cars cannot go to the workshop the workshop should go to the car. The faith of Mahomet may have failed to move the mountain,

motor boat, L'Antoinette II. The experiments took place in the neighbourhood of Billancourt. As soon as the motor boat got up speed the aeroplane left the surface of the water and soared along towed by its rope for a distance of some 60 metres, at a few metres above the surface. It was manned by M. Voisin, as on previous occasions, and when, after some experimenting, it got a little out of adjustment, it took a dive beneath the surface of the water, M. Voisin was with difficulty extricated. Similar experiments were made with the aeroplane of M. Eleriot, a construction substantially the same as that of M. Voisin, but of smaller dimensions. Altogether the experiments do not appear to have shown very much, for no one entertained any doubt that if properly guided an aeroplane of this kind would rise if towed by a rope, and carry a man with it, just as an ordinary kite does.

THE Montgomery aeroplane, the successful experiments with which we described a little time ago, when repeating its previous demonstration in California, in which it was carried up to its usual altitude of some 3,000 feet, experienced a tragic accident, owing, it is believed, to the guide ropes of one part of the wings becoming entangled. The aeroplane was cut loose from the lifting balloon as before, and the aeronaut, Mr. Maloney, manipulated it for some short time, apparently with his customary control. All of a sudden, however, it was observed to dive earthwards, and the aeronaut was unable to regain control of its equilibrium, the result being that it crashed to the ground, killing the unfortunate Maloney and badly damaging the machine.



to do is to drop a postcard to the head office of the firm in Regent Street, and the caravan will set forth to attend to his wants. There is very little doubt that Mr. Harvey du Cros will find his idea extremely popular; already the users of Panhard cars are legion, and as the advantages of being able to summon expert help in this way will offer a strong inducement to would-be purchasers, the travelling-workshop, as an institution, is not likely to remain for long with this as a solitary example.

MESSRS. PANHARD'S MOTOR WORKSHOP.— View of the complete vehicle.

but some allowance must be made for the fact that he lived in days when automobiles were unknown. Nowadays it is more than probable that some enterprising syndicate would be formed to endeavour to comply with the prophet's desire. At any rate, the happy possessor of Panhard cars is now in the enviable position of being able to summon to his aid a veritable road "Vulcan," and a competent staff of mechanics as well, which, with characteristic enterprise, Mr. Harvey du Cros has devised for their convenience. All that the motorist has

THE PANHARD SELF-PROPELLED WORKSHOP.— View of the interior.

RACES, RECORDS, AND TRIALS.

BLEICHRODER RACE.—Hieronymus on his Mercedes, after his start for the Kesselberg.

HERKOMER TROPHY, 1905.—Table of Official Results.

Place.	Car and Entrant.		Class.	Marks.				Total.
				Appear- ance.	Speed.	Relia- bility.		
	h. p.			m. s.	m. s.	m. s.	m. s.	
1	40 Mercedes (E. Ladenburg)	2	32	10	21	18½	36	0 25 8½
2	40 Mercedes (H. Weingaud)	2	29	40	21	34½	36	0 27 54½
3	60 Mercedes (W. Pöge)	1	32	0	17	27½	43	0 28 27½
4	35 Opel (F. Opel)	2	30	10	24	34	36	0 30 24
5	35 Clem-Bayard (F. Werner)	2	28	40	23	21½	36	0 30 41½
6	40 Mercedes (H. Ruzicki)	2	27	20	22	2½	36	0 30 42½
7	28 Mercedes (R. Karzenstein)	2	30	0	24	46½	36	0 30 46½
8	40 Benz (J. Turck)	2	29	40	29	40½	36	0 31 0½
9	24 Adler (Adler Company)	3	27	40	22	59½	36	0 31 19½
10	24 Adler (C. Löhr)	3	27	20	24	56½	36	0 33 36½
11	40 Mercedes (B. Flinsch)	2	25	50	23	7½	37	0 34 17½
12	40 Benz (E. Scharrer)	2	22	50	24	40	36	0 37 50
13	24 Mercedes (H.H. Prince Franz Josef v. Battenberg)	3	25	30	27	52	36	0 38 22
14	24 Adler (J. Goss)	3	21	30	24	1	36	0 38 31
15	24 Clem-Bayard (A. Baur)	3	27	0	29	31½	36	0 38 31½

Herkomer Trophy.—Last week we published, in tabular form, the results of the speed-trials which took place on the Kesselberg Hill and in Fürstenrieder Park; we are now able to give, in a similar manner, the official results of the whole competition in which these two events were embodied. The same system of "marking" in "minutes and seconds" has been adopted, and, as if this were not sufficiently confusing, an elaborate juggling takes place in order to get at the final result on which the Herkomer Trophy itself was awarded.

There are, as is obvious from our table, three headings under which marks have been allotted, viz :—Appearance, speed, and reliability. Of these, the marks given for speed include those for the Kesselberg Hill Climb and the flat race in the park, as published in our columns last week. The appearance and reliability marks have been allotted in the manner explained by us in our issue of August 19th. A maximum of 36 marks was given for appearance, and a minimum of 36 marks for reliability, this curious system entailing the winner of each event having the highest marks in one case and the lowest in the other. In the speed contest, the winner was

The judges' tent at the Fürstenrieder Park Races.

The official tent on the Kesselberg.

HERKOMER TROPHY.

HERKOMER TROPHY.—The cars on exhibition in Beissbarth's Auto Hall.

also denoted by the least marks. To reduce this chaos to order of merit is no mean task, and we notice that the formula for this, as published by us last week, is not quite the same as that on which the "total marks" given in the official table were finally based, which is:—Total = Reliability + Speed — Appearance. Combined with the peculiar system of time units which have been adopted as "marks," the whole effect is unquestionably confusing, and we cannot help thinking that a simpler scheme could have been used which would have given equally good results in a more intelligible manner.

Notwithstanding the evident reliability of the five Daimler cars, and their phenomenal successes in the speed contests, they unfortunately failed to secure places in the final classification, entirely owing to the sequence of tyre troubles which marred the progress of their tour.

This is all the more regrettable as these cars created quite a sensation wherever they went, and there is no doubt that the Daimler caravan has done much to enhance British reputation, both for sport and manufacture.

Several of the competitors who were not placed, received a silver medal and honourable mention for going through the reliability tour without being penalised by marks. Among these were G. Dawson, 35-h.p. Daimler; Argus Company, 20-h.p. Argus; G. Beissbarth, 30-h.p. Peugeot; G. Achenbach, 24-h.p. Achenbach; H. Lucke, 24-h.p. Scheibler; Horch and Co., 18-h.p. Horch; Frhr. v. Moliton, 16-h.p. Metallurgique; Dr. Haberland, 16-h.p. Opel; L. Sprung, 16-h.p. Peugeot; B. Branda, 15-h.p. Opel.

Herr F. Kösel, who drove a 28-h.p. Benz unofficially, is classified in the official results between the third and fourth places as "3A."

HERKOMER TROPHY.—Arrival of the cars in Munich after the three days' touring trip to Baden-Baden and Nürnberg.

cars, with points of 14,438, the Brouhot house securing this prize with 14,973 points.

The principal results by category are as follows. Except where stated, the cars are open:—

Category 1.—Open Cars of total value of 5,000 frs. and under. Closed Cars up to 6,000 frs.

1. 8-h.p. De Dion Bouton* (Bardin), 4,680 points. 2. 8-h.p. Fouillaron† (Grillet), 4,553. 3. 8-h.p. Cottereau* (Chalas), 4,250.

Cat. 2.—Open Cars up to 8,000 frs. Closed 9,000 frs.

1. 10-h.p. De Dion* (Didier), 5,038. 2. 12-h.p. Gladiator* (Hervillard), 4,363. 3. 10-h.p. De Dion* (Laporte), 4,297.

Cat. 3.—Open cars, 8 to 12,000 frs. Closed, 9 to 15,000 frs.

1. 15-h.p. Brouhot‡ (Belleville), 5,242. 2. 15-h.p. Brouhot‡ (Marechal), 4,842. 3. 20-24-h.p. Darracq† (Coujet), 4,784.

Cat. 4.—Open cars 12 to 18,000 frs. Closed, 13 to 19,500 frs.

1. 16-22-h.p. Berliet‡ (Ballot), 5,028. 2. 24-h.p. Brouhot‡ (Feuillot), 4,889. 3. 24-h.p. De Dion* (Cormier), 4,720.

Cat. 5.—Open cars 18 to 24,000 frs. Closed, 19,500 to 26,000 frs.

1. 40-h.p. Brouhot‡ (Richez), 4,944. 2. 24-h.p. Rochet-Schneider‡ (De Sambrecy), 4,759. 3. 30-h.p. Ariest† (Baron Petiet), 4,713. 4. 24-h.p. Rochet-Schneider‡ (closed), 4,532.

Cat. 6.—Open cars over 24,000 frs. Closed over 25,000 frs.

1. 40-h.p. De Dietrich† (Sorel), 5,356. 2. 60-h.p. Mercedes‡ (Bary), 4,407. 3. 60-h.p. Mercedes* (Baron H. de Rothschild), 4,267. 4. 24-h.p. Gladiator* (Mercy), 3,851.

In the class for regularity for teams of three, the winning cars were:—1. Brouhot, 14,973 points. 2. De Dion, 14,438, and Peugeot, 12,283.

Tyres:—* Dunlop. † Michelin. ‡ Continental.

HERKOMER TROPHY.—The Grand Duke Cyril of Russia is amused during the Kesselberg Climb.

Pyrenees Cup.—Of the sixty starters from Toulouse on August 20th, no less than fifty-five not only "got through," but they arrived back at Toulouse on August 27th in excellent time and splendid condition, after covering the 1,385 kilometres of almost continuous climbing and descending hills, in many cases of exceptionally severe gradients. The competitors received a big ovation upon their re-entry into Toulouse, and the whole run has probably proved one of the most important long distance contests carried through recently in France. The factors taken into consideration in arriving at the awards include hill climbing, power, brake efficiency, comfort in riding, average speed combined with regularity, speed on the flat, condition of the cars after the trial, fuel consumption per ton kilometre, &c.

Considering the distance and the nature of the route through the Pyrenees the absence of any bad accident, except the one due to carelessness recorded by us last week, is a matter for considerable congratulation to the organisers, and all those who took part in the event.

Sorel on a 40-h.p. De Dietrich car using Michelin-Samson tyres, has been adjudged the winner of the Pyrenees Cup, with 5,356 points, Belleville on a 15-h.p. Brouhot taking second place in the general classification with 5,242 points, and Didier on a 10-h.p. De Dion car securing the third place with 5,038 points. The actual best average speed is unofficially attributed to Bary on a 60-h.p. Mercedes shod with Continental tyres. In addition to the third place in the general classing, the De Dion house secure by category the 1st place in Cats. 1 and 2, the 3rd place in Cat. 4, and the 2nd place for regularity of running with their team of three

Australian Reliability Trial.—The very successful reliability trial organised last February by the Dunlop Tyre Company, of Australia, is to be repeated from November 14th to 18th next, and is thereafter to become an annual fixture in November each year. The February run was from Sydney to Melbourne. Upon this occasion the route will be reversed, and the competition start from Melbourne and finish at Sydney. The rules are practically the same as those which governed the first contest, minimum and maximum time limits being enforced for each stage of the run, these times varying according to the classes. The five days' run will be: November 14th, Melbourne to Euroa (100 miles); 15th to Albury (101 miles); 16th to Gundagai (121 miles); 17th to Goulburn (121 miles); 18th to Sydney (129

HERKOMER TROPHY.—Another view of the Mathis "palace" travelling car. Note the bath, &c., on the roof.

the district was afflicted, and the results of which are illustrated in some of the photographs we reproduce, had carried away a great part of the road surface. It took twenty men to clear the foot of the hill sufficiently to allow the cars to pass, and part of the road where the water was still running had to be filled with stones, brushwood, and gorse, with cottage doors placed on the top, to enable the vehicles to get up at all.

Results:— Class A.—(Up to £200).

1. H. Green (8-10-h.p. Rover), 2m. 1s.
2. Mrs. Mecredy (8-10-h.p. Rover), 2m. 14½s.
3. Sir V. Grace (8-h.p. De Dion), 3m. 11½s.

Class B.—(£200 to £400).

1. J. P. A. Colley (10-h.p. Argyll), 2m. 15½s.
2. J. M. Close (10-h.p. Peugeot), 2m. 16½s.
3. M. Stewart (10-h.p. Argyll), 2m. 25s.
4. D. Jamieson (8-10-h.p. Humber), 2m. 41½s.
5. G. T. Robinson (9-h.p. Talbot), 2m. 43½s.

Class C.—(£400 to £600).

1. G. T. Robinson (12-h.p. Talbot), 1m. 51s.
2. A. Rawlinson (15-h.p. Darracq), 1m. 59½s.
3. W. R. McTaggart (12-h.p. Argyll), 2m. 8½s.
4. Humphrey Bland (16-h.p. Argyll), 2m. 12s.
5. J. Walters (14-h.p. Vinot), 2m. 14s.

Class D.—(£600 to £800).

1. T. Henshaw (28-h.p. Daimler), 1m. 35s.
2. W. G. D. Goff (20-h.p. Clement), 1m. 48½s.
3. M. Pevit (16-h.p. Pevit), 1m. 58½s.
4. A. Rawlinson (40-h.p. Darracq), 2m. 1s.
5. W. R. McTaggart (24-h.p. Argyle), 2m. 2s.

Class E.—(Over £800).

1. S. H. Cochrane (60-h.p. Mercedes), 1m. 8s.
2. A. Rawlinson (70-h.p. Darracq), 1m. 11s.

100 Miles Speed-Judging Contest.—Under the auspices of the Hull A.C., a trial of driving within specified speed limits over a distance of 103 miles was carried out last week. Two classes were created, one for cars and forecars, and one for motor cycles, cups being offered by Colonel Harrison-Broadley and Mr. C. J. Naylor for the two classes respectively. The speeds fixed were, for cars, 13 to 17 m.p.h., and for

Photograph by Ralph Mecredy.

IRISH HILL-CLIMB.—Road en route to the selected hill, washed away by the floods. Cars had to return and proceed by a circuitous route to the scene of the contest.

miles). A separate contest over the same route is arranged for motor cycles, which are also allowed specific times for the run. It is to be hoped that British manufacturers will see that their cars take part in this reliability run, as a very large amount of business is springing up in Australasia, and no better method could be conceived of capturing this field for motor cars than by successfully demonstrating to the Australian public the suitability of particular makes of British cars for the requirements of colonists. The Continental and American manufacturers fully appreciate the importance of this run, and we understand are arranging for a considerable show of cars in the contest. Mr. C. Proctor, at 108, Flinders Street, Melbourne, has the whole matter in hand, and without doubt a similar success awaits this trial to the one which Mr. Proctor did so much to promote successfully last February.

An Irish Hill-Climb.—Owing to the destructive storm of Friday the members of the Irish Automobile Club were compelled to change the venue selected. Never—not even when the bolt fell from the blue that put a stop to the Dashwood Hill competitions—was a hill-climb ever carried out in the teeth of such terrific obstacles. It was originally intended to hold the event on Ballynaslaughter Hill, outside Newtown, Mount Kennedy, co. Wicklow, but the effect of the incessant downpour cut up the road to such an extent that such was impossible. However, an equally good hill on the other side (Callow Hill) was selected, and the annual open competition took place. Even on this hill, the fearful downpour of rain with which

Photograph by Ralph Mecredy.

IRISH HILL-CLIMB.—One of the cars negotiating a filled-in morass in the hill. Some cars stuck in this and had to be “spoked” over.

THE TOURIST TROPHY—(continued).

To facilitate reference to the various specific points raised in our article, and referred to by our correspondents, we reproduce the summary of the chief suggestions put forward by us, as also the list of the weights, measures and dimensions that are specified by the rules for this year's race.

Suggested Modifications of Rules for Future Years.

- (1) The bodies to be comprised of four independent parts.
- (2) No cars to have engines with less than two cylinders.
- (3) No cars to have more than four forward "speeds."
- (4) Any obvious "freaks" may be refused entry at discretion.
- (5) Any unduly noisy car may be disqualified at discretion.
- (6) The race to extend over two, or three, consecutive days.
- (7) The cars to start, at equal time-intervals, in order of numbers.
- (8) The cars to be stopped, timed, and re-started immediately, at numerous "controls."
- (9) The cars to carry numbers denoting laps completed.
- (10) The cars to be driven by different drivers each day.
- (11) A class to be instituted for two-seated cars, to compete separately, and on other days.

VIEWS AND OPINIONS

Mr. F. S. Bennett:—

I have read with great interest your article on the Tourist Trophy, and beg to compliment you on the comprehensive manner in which it has been dealt with. In fact, it is so comprehensive that there is little left to be said beyond giving an opinion regarding the "Suggested Modifications of Rules."

Of course, the main idea is to develop the "Ideal Touring Car," and then the question arises, what is an ideal touring car? Remember that "some like apples and some onions." The main point from a manufacturer's and agent's point of view is—is it going to teach us something that we do not learn from the experience of our daily business? The writer is inclined to think that we shall learn something from an event of this sort, but it will be at considerable expense. There are over 50 entries, and there is to be only one winner, consequently it is over 50 to 1 chances against winning.

Of course, the real value to a manufacturer or agent depends on how well the event is reported in the papers, and to enable the Press to do justice to each car, it is of vital importance that the club should furnish it with an elaborate and extensive amount of information.

What I mean by this is that the performance of *each* car should be tabulated and published so that the whole credit and advantage does not go to the winner. I presume that it may be taken for granted that this will be done, but we cannot be too persistent in urging the necessity of it, as it is only natural that the winner gets great credit, whilst the rest are neglected.

Referring to your suggestions:—

1. I do not agree with the principle of dividing the bodies into four independent parts. The idea should be, as far as possible, to use standard types of bodies, and not those which are verging on being freakish.

2. This is a matter with which I most emphatically disagree. Being one of the champions of the single-cylinder principle in this country, I certainly do not see why the single-cylinder should be debarred. After all, is not a single-cylinder the ideal type as regards simplicity? You must admit that the last year or two have done much towards the development of the single-cylinder car. There are single-cylinder cars now on the market which, when once they have picked up their speed, run so smoothly that they cannot be beaten by four cylinders in this respect. In any case, it is only fair that all classes and types should be allowed to enter, and show what they can do.

3. More than four speeds forward with the type of gears at present mostly used on cars might fairly be called freaks.

4 and 5. These are good suggestions, and, I think, might be carried out with advantage.

6. I quite agree that the race should, if possible, be extended over one day. Three days, if possible. An event of this sort should be kept in front of the public for as long a time as is practicable, in order that the advertisement should be greater, for, after all, is not this the main idea that the manufacturers have in view when going to the expense of entering for an event of this description? Of course, it is probable that the authorities would not grant permission for more than one day, as the Isle of Man season would not be over.

7, 8, and 9. It is most important that the spectators should have information regarding the progress of the race and the positions of the respective cars. Any system that may be adopted would be beneficial if this information could be successfully made known to

Specified Weights, Measures, and Dimensions in the Existing Tourist Trophy Rules for this Year.

- (A) *Fuel Consumption*—1 gall. per 25 miles (dry, average road).
- (B) *Weight of Body and Load*—950 lbs. (including 300 lbs. ballast and 22 stone passengers).
- (C) *Weight of Chassis*.—Between 1,300 lbs. and 1,600 lbs.
- (D) *Wheel-Base*.—Not less than 7 ft. 6 ins.
- (E) *Track*.—Not less than 4 ft.
- (F) *Platform behind Dash*.—Not less than 6 ft. 6 ins. long and 2 ft. 6 ins. wide.
- (G) *Width of Seats* (each pair).—Not less than 3 ft. 4 ins. (between cushions).
- (H) *Height of Seats* (from ground).—Not less than 2 ft. 10 ins.

OF OUR READERS.—VI.

the public during the race. This matter is of great importance, and I trust it will be well looked after.

10. I do not agree that there is much advantage in changing drivers each day. What we want to get at is the best that can be obtained from a car under the best conditions.

Some of the rules are certainly open to criticism, but it is probably too late now to get them altered, so we must be content to gain our experience for this year's race under the present rules and modify them next year, when we shall, I trust, all be wiser for the experience gained this year.

F. S. Bennett

Captain B. D. Corbet:—

Although I fully appreciate the many undoubted merits of such an event as the proposed Tourist Trophy Race, and also the manner in which THE AUTOMOTOR JOURNAL has taken up this matter in its columns, yet this year's race entirely fails to appeal to me, and must do so, I believe, to all those who, like myself, are interested in the most successful types of touring car of to-day. The weight limits must by the existing rules preclude any such cars from taking part, and I think it is obvious that some freak, built specially for the purpose, stands the best chance of success this year. It is to be hoped, therefore, that another year the club will organise the event in such a way that the makers of more substantial and really useful vehicles can associate themselves with it. Doubtless, however, much valuable information will be obtained from the forthcoming event concerning the relative advantages of the underlying principle of the T. T. competition, and unquestionably your article will have served a useful purpose in familiarising your readers with the many points involved.

B. D. Corbet

Mr. T. Blackwood Murray:—

I have read with great interest your very able article on the Tourist Trophy Competition.

While this competition will no doubt form a very interesting annual event, I cannot see that it will do much to further or hasten the development of the really practical motor car for every day use. This, I think, will only be brought to its final state of perfection by a gradual process of evolution based on the results of many years' road experience and the requirements of the public.

Past experience has proved that in whatever direction limitations are imposed by competition rules, they invariably lead to the production of abnormalities in design, whereby competitors hope to score an advantage. Such abnormalities are almost inevitably outside the pale of sound engineering design.

I believe the Tourist Trophy Competition will result in the production of very efficient highly specialised cars, requiring really expert drivers to get anything like the best results out of them,

whereas what is really wanted for the general market is simple, strong, reliable cars, as automatic in their functions as possible, which can be handled without expert knowledge, and capable of being driven thousands of miles without necessitating repairs or adjustments.

To prove my contention, I might take as an instance the function of ignition advance. This most important function can be automatically carried out by comparatively simple means, and with excellent results and good efficiency, thus giving the driver one lever less to attend to, still there is no gainsaying the fact that probably a really expert driver could get still better efficiency with a hand-controlled ignition advance. Obviously, therefore, the latter would be fitted to a car intended for the Tourist Trophy Competition, whereas the former device would be an infinitely preferable and more satisfactory arrangement for the general market.

Again, it is reliability, and not speed, that 95 per cent. of the purchasing public is now looking for, and to determine reliability I do not think that any competition of much less than 8,000 to 10,000 miles would be of real value in determining the absolute relative reliability of various cars, and to eliminate the question of luck, there ought to be at least three or four cars of each type entered in the trial. The expense of carrying out such a trial would, of course, be prohibitive.

I think it is extremely doubtful whether it is at all advisable for the club to hold anything of the nature of races or speed trials in the meantime, in view of the very strong public feeling against excessive speed, and of the forthcoming reconsideration of the 1903 Act; on the contrary, every effort should be made by the club to discountenance excessive speeds.

I do not think it would be advisable to have the bodies in four separate parts as you suggest. This would throw quite unusual and unnecessary strains on the frame, and would call for special bracing to meet these strains. In other words, a type of frame would have to be got out which would probably be of no practical value for ordinary work.

As to your suggestion No. 4, it seems to me it would be extremely difficult to adjudicate between freak cars built purely for the purpose of winning the trophy, and new departures which might be honest and meritorious designs.

As to No. 5, I do not see how any satisfactory decision can be arrived at on the questions of noise, vibration, smokelessness, or similar qualities, where there is no possibility of determining in a definite and scientific manner the relative co-efficient of various competing cars.

As progress in motor car development now is likely to take the shape of improvements in details, it seems to me that the club could best further the interests of the industry by holding annual exhibitions at which manufacturers and others might submit new or improved devices, the relative merits of these to be reported upon by a committee of properly qualified judges.

Such an exhibition would present a splendid opportunity, especially for an impecunious inventor, to bring a particular improvement before the notice of the general motoring public.



Mr. J. W. Stocks :—

I have read your article on the Tourist Trophy Race, and also the letters which have appeared on the subject, with considerable interest. It is only a week or two ago that I penned a letter to the motor journals explaining why it was impossible for me to enter any cars on behalf of Messrs. De Dion Bouton, Limited. The two clauses which bar us are C. and D., weight of chassis and wheel base respectively. The weight of our 10-h.p. chassis would come within the limit stipulated, *i.e.*, between 1,300 lbs. and 1,600 lbs., but the track is 46½ ins., or 1½ ins. too narrow for the conditions laid down. Our standard wheel base is only 6 ft. 8 ins., although we could have entered a long chassis having a wheel base of 8 ft. 9 ins., if the track had been suitable.

We now come to our other twin and four-cylinder models. These are correct in regard to the track, but the chassis would not come within the 1,600 lb. limit of weight, and it would have been useless asking the manufacturers to put special models in hand for this Trophy, as we ourselves were too anxious to obtain deliveries of the standard models for which we have so many orders, and from a business point of view, could not see our way to have these delayed by an excuse about out-of-standard cars, even if the manufacturers had been prepared to fall in with such a suggestion, which I very much doubt.

I believe the conditions laid down for this year's trials exclude other well-known makes of cars besides the De Dion, and suggestions from those who have to be content with looking on this

year will doubtless be welcomed by the Automobile Club, as a guide in framing their next year's conditions.

Dealing with the existing Tourist Trophy rules for this year :—

A. Fuel Consumption—25 miles per gallon.—It is no doubt possible to so arrange an otherwise suitable car that it will cover 25 miles on one gallon of spirit, but I do not think the average user would obtain such results with satisfaction.

B. and C. I will combine these two—Weight of Body and Load and Weight of Chassis.—I suggest that the total weight of the car loaded shall be not more than so much—say 2,550 lbs. If passengers, weighing 22 stones, and 300 lbs. of ballast, brought the fully loaded car up to more than 2,550 lbs., sufficient ballast might be dispensed with to just bring it within the maximum limit.

D. and E. Wheel Base and Track.—I think more latitude should be allowed here, but before another race takes place, doubtless the Automobile Club will have more data in front of them in regard to the different makes of cars which have been excluded under the present regulations.

I have no suggestions to make in regard to *F. Size of Platform behind Dash*; *G. Width of Seats*; and *H. Height of Seats*.

Dealing with your suggested modifications of rules for future years :—

1. Unless some valid reason is given for same, I cannot see that any useful purpose will be served by making the bodies in four independent parts.

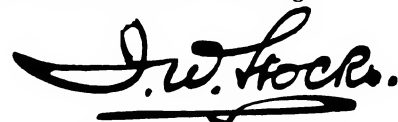
2. I should not agree to exclude single cylinder engines. As a matter of fact, we have sold more cars this year with single cylinder engines than in any previous year, and I would suggest making three classes—one for single cylinder cars, another for twin cylinders, and the third for three or over.

3. *No cars to have more than Four Forward Speeds.*—Agreed. As the engines become more flexible, the tendency appears to be to decrease rather than increase the number of speeds and consequent changing of gears.

4, 5, 6, 7, 8, and 9. I think this year's trials will probably teach a useful lesson in dealing with these questions.

10. Cars to be driven by different drivers each day. This might be at the option of entrant, although I think it advisable for the same driver to take the car right through, unless incapacitated for some reason or other.

11. I think I have dealt with this under No. 2 heading.



Messrs. John I. Thornycroft and Co., Limited :—

Your interesting article on the Tourist Trophy has called forth some equally interesting letters from representatives of the industry, and Mr. Thornycroft instructs me to regret that he has been, and is, too busily engaged with the motor boat reliability trials, and other motor boat events in the south, to write upon the subject.

Mr. Thornycroft thinks that the letters of your correspondents have very well covered and answered the points you raise, but taking them as you have numbered them :—

1. We cannot see the point of constructing the bodies in four independent parts, and agree with Mr. Napier that such construction would be more likely to give trouble.

2. As single-cylinder engines in general may be expected to be less expensive than those of multiple cylinders, besides being somewhat simpler, and, as a very large class of people use single-cylinder cars, we do not see why they should be barred.

3. We agree with you that not more than four forward speeds should be allowed, as, if properly proportioned, four changes of gear is ample for any touring car, and the addition of further changes would add complications, and probably imply a "freak."

4. It would obviously be a very dangerous rule that a "freak" car may be refused entry "at discretion." Motor racing authorities are not always remarkable for discretion, and at least it would tend to lay them open to the charge of prejudice, whether or not it actually existed. The rules should be drawn in such a way as to exclude "freaks" as far as possible.

5. It is certainly very desirable to at least penalise very noisy cars, since, with a well designed and constructed car, at any rate with multiple cylinders, noise is nowadays quite unnecessary. Also we should like to see some differentiation between engine and transmission noise and exhaust noise, since the latter can be stopped or minimised, and the former implies faulty design or construction, and means undue wear and tear. But again, we do not like the word "discretion."

6. We see no objection to extending the race over two or three consecutive days, and, in fact, think it would be better than a single day's race.

7. We agree that the cars should start at time intervals, but not necessarily equal ones, nor in order of numbers, since some cars must inevitably travel faster than others, and unless the faster cars were started first there would be passing, or, at least, overhauling between controls.

8. The institution of frequent controls would probably increase the interest of spectators in the race, and might assist the officials in conducting its progress, and, therefore, may be desirable.

9. The carrying of numbers to denote the laps completed hardly seems a matter of much moment to the entrants, though it might be of interest to the spectators.

10. As the Trophy presumably is awarded to the car, and not to the driver, it hardly seems fair that a manufacturer should be debarred from putting his best driver on the car and keeping him there during the period of the trials. Furthermore such a rule would operate hardly on the smaller manufacturers, though it might not be of so much importance to those of considerable staff.

11. We do not quite see the point of a class for two-seated cars, and think it would be better to arrange a separate class for low-powered cars.

JOHN I. THORNYCROFT & CO., LTD.

Regd. A. O. Markings

TOURIST TROPHY ENTRIES.

Entrant.	Car.	Entrant.	Car.
1 Hon. C. S. Rolls	Rolls-Royce	31 T. C. Pullinger	B-Humber
2 S. F. Edge	Napier	32 E. H. Lancaster	Clément
3 Cecil Edge	Napier	33 R. W. Maudslay	Standard
4 Percy Martin	Daimler	34 A. McCormack	Gladiator
5 E. M. C. Instone	Daimler	35 A. R. Atkey	Renault
6 J. W. H. Dew	Speedwell	36 W. H. Arnold	Whitlock-Aster
7 J. W. H. Dew	Speedwell	37 R. Dennis	Dennis
8 W. H. Astell	Orleans	38 R. Dennis	Dennis
9 W. H. Astell	Orleans	39 Hon. C. S. Rolls	Minerva
10 R. R. Brown	Wolseley	40 W. M. Appleton	Bristol
11 J. D. Siddeley	Siddeley	41 J. Percy Dean	Scout
12 T. Thornycroft	Thornycroft	42 A. Rawlinson	Darracq
13 F. R. Simms	New Simms-Welbeck	43 A. Rawlinson	Darracq
14 Capt. Deasy	Deasy	44 Mrs. J. Benett-Stanford	Dixi
15 F. F. Wellington	Spyker	45 Charles Jarrott	Crossley
16 E. Lisle	Star	46 Charles Jarrott	Crossley
17 J. Lisle	Star	47 D. Citroen	Minerva
18 A. Govan	Argyll	48 F. Guy Lewin	Peugeot
19 A. Govan	Argyll	49 G. V. Baxendale	Thornycroft
20 T. B. Browne	J. and B.	50 E. W. Lewis	Rover
21 F. S. Bennett	Cadillac	51 J. K. Starley	Rover
22 C. C. Maudslay	Maudslay	52 Capt. J. B. Théomasi	Germain
23 Hon. C. S. Rolls	Rolls-Royce	53 W. M. Jenkins	Enfield
24 F. W. Hodges	Vauxhall	54 A. C. Hunter	Renault
25 T. C. Pullinger	Beeston-Humber	55 Louis Carle	Mors
26 H. du Cros, jun.	Swift	56 C. H. Wigan	Vinot
27 E. de Wilton	Swift	57 I. S. Napier	Arrol
28 A. J. Clay, M.A.	Ryknield	58 J. S. Napier	Johnston
29 Frederic Coleman	White		
30 Frederic Coleman	White		

There are 8 withdrawals from the above list, viz. :—Nos. 14, 15, 17, 35, 45, 46, 52, 54. The numbers given above are not those which will distinguish the cars in the race.

French Military Motor Wagon Trial.—The results of this trial, which took place in conjunction with the recent Heavy Vehicle Trial of the A.C. de France, are announced, the awards being :—(1) Delahaye wagon, No. 91; (2) De Dion Bouton wagon, 84; (3) Gillet-Forest, 83; (4) Peugeot, 86; (5) Peugeot, (87); (6) Dietrich, 81; (7) Peugeot, 85; (8) Ariès, 93; (9) Latil (avant-train), 88; (10) Ariès (92). Under the arrangement with the French military authorities the first three of these in any case will be purchased by the Government. The weight of the winning Delahaye vehicle, light, is 1,919 kilos., and useful load carried, 1,032 kilos.

Legislation Fund of the A.C.G.B.I. and Motor Union Joint Committee.—In addition to the contribution of £500 of the A.C.G.B.I. and the £400 of the Motor Union already announced, the Berkshire A.C. have now voted a further 40 guineas to their first 10 guineas, making a total from this club of 50 guineas. This Fund has also received a sum of 100 guineas per Mr. Lionel de Rothschild, being 25 guineas each from Mr. A. de Rothschild, Mr. Lionel de Rothschild, Mr. Leopold de Rothschild, and Mr. Evelyn de Rothschild. Amongst others who are assisting are Mr. R. D'Oyley Carte, 5 guineas; Mr. L. H. Nathan, 3 guineas; Capt. F. R. Spencer, Messrs. Albert Brown, and J. S. Finch Hudson, each 1 guinea; Edward J. Thompson, £1; H. Gardner and E. B. Gardner, each 10s. 6d.; J. Madeley, Miss Madeley, and Mr. and Mrs. Granville Kenyon, each 10s.

THE Leicestershire Automobile Club have performed a kind-hearted action, which should go a long way towards rendering the automobile popular with the inhabitants of the midland town. One day last week they placed their cars at the service of the crippled children of Leicester, and fifty of them were given a most delightful day's outing to Nanpantan and Longcliffe. It is hoped that, considering the great pleasure given to the children whose lives have but few pleasant reminiscences to call to mind, this philanthropic (or rather philoædic) application of the automobile will be by no means the last.

"The Future bound to an Automobile"—the original Menu Card designed by Professor Herkomer, for the Banquet held at Munich at the conclusion of the recent German Automobile week.

MOTOR BOATING.

International Cup for Motor Boats.—The British team having been satisfactorily settled, the next most interesting point is the constitution of the French and American representatives. For the latter, Challenger and the Dixie were the only boats announced as likely to run. But by cable the American Club announce their entire withdrawal from the race. Although the French club have three boats engaged, viz., De Dietrich VI, Hotchkiss and Paliasoto, the two former are not thought as likely to take part, which leaves Paliasoto to uphold the French colours. British prospects of bringing back the "Cup"—which, by the times accomplished at Ryde, really never ought to have left these shores—are therefore very hopeful with three such craft as the two Napier boats and Brooke I.

British Motor Boat Club.—A third day's racing will most likely be added on the 22nd to this club's fixture, at Burnham-on-Crouch, on September 20th and 21st.

The races on the 20th will be for the 40 ft. racing class, 30 ft. class, 25 ft. class, and the *bona fide* sea-going cruiser class exceeding 35 and not exceeding 75 ft. over all. The second day's racing will consist of races for 40-footers, 30-footers, and 25-footers.

A WONDERFUL and record run has been made by the Napier 40-foot racing launch owned by Lord Howard de Walden and steered by Mr. Seaton Edge. After running 220 miles during the Motor Yacht Club's reliability trials, she went to Cowes, from which place a trip to the Warner Light was undertaken in exceptionally heavy weather. On the following day the Napier ran from Cowes to the Yarrow Yard at Poplar without a single stop, except two hours spent at Dover in interviewing the Channel swimmers. The actual running time was 9h. 55m., and the distance covered 190½ nautical miles. This works out at the extraordinary average speed of 21½ miles per hour. While motor boats are performing prodigies of this kind, it is no wonder that the naval authorities are proceeding to give their serious attention to the subject. That the motor boat is capable of going to sea in practically any weather has already been satisfactorily demonstrated. The Admiralty is, of course, anxious to obtain reliable results with boats using heavy oil as fuel, and so built as to be capable of being lifted on board war vessels by the davits. That these requirements will be met without much trouble may be confidently anticipated.

At Evian, in France, a three-days' motor boat meeting was held on the lake, commencing last Saturday. A better showing of competitors, both in the racing section and the cruisers, was brought out than has been seen at recent similar meetings on the Continent. The course was a triangular one over a distance of 20 kiloms., and the cruisers on the first day took their turn at racing round it, the winners in each class being as follows:—

Series 1. Under 6½ metres.—Distance 60 kiloms. (1) Mendelssohn (Mutel motor), 2h. 44m. 19s. (2) Delahaye V., 2h. 57m. 5s.

Series 2. 6½ to 8 metres.—60 kiloms. (1) Excelsior VII., 2h. 39m. 21s.

Series 3. 8 to 12 metres.—100 kiloms. (1) Forces-Pas (Mors motor), 3h. 5m. 18s. (2) Delahaye VI., 3h. 21m. 41s.

On the second day a new world's record was put up for 100 kiloms. by the 8-metre boat Antoinette III., her time being 2h. 15m. 50⅓s. The winners on this day were:—

RACERS.—100 kiloms. (1) Antoinette III. (*under 8 metres*), 2h. 15m. 50⅓s.

8 to 12 metre Class.—(1) New Trefle, 2h. 35m. 37⅓s.

CRUISERS. 40 kiloms. **Series 1. Under 6½ metres.**—(1) Mendelssohn, 1h. 46m. 35s.

Series 2. 6½ to 8 metres.—(1) Excelsior VII., 1h. 53m. 36⅓s.

Series 3.—(1) Qui Vive (Picker motor), 1h. 34m. 0⅓s.

On the last day the *extra réglementaires* class boats occupied the day's programme.

In this class Marie Madeleine did the best time over the 20 kiloms. in 1h. 28m. 56s. For the standing mile, and the flying kilom., Antoinette in the Racing Class was first with times as follows:—Flying kilom., 1m. 17⅓s.; standing mile, 2m. 54⅓s. In the Cruisers, Forces-Pas was timed for flying kilom., 1m. 50⅓s.; standing mile, 3m. 20s.



THE RT. HON. SIR JOHN POUND, BART., the chairman of the London General Omnibus Company, when presiding at the half-yearly meeting of the company last week, was very hopeful of the future of the motor 'bus. In addition to £20,000 carried to the motor fund six months ago, a further £20,000 out of profits has been placed to the same account this half-year "for experimental motor services." Up to June 30th under £7,000 of this £40,000 had been used, so that the L.G.O.C. should be in a good position to be near the top in the end. The chairman, referring to the motor omnibuses, made the following remarks:—

"We have organised a repair department under a competent engineering expert, have trained practically a number of drivers, built omnibus bodies in our coach factory, and as the chassis are delivered will be prepared to put more motor omnibuses on the roads under the most favourable working conditions. We expected ere this to have had a larger number of motor omnibuses at work. Those delivered have all been behind time, some were found on examination to be unsatisfactory, and we preferred to wait for machines which we believe to be reliable and durable rather than put a number of vehicles on the road which would probably result in a heavy working loss. I believe that the motor omnibus has come to London to stay, but I am equally convinced that some of those now working in our streets will cause their proprietors to wish they had not embarked in so speculative an enterprise. For the first few months or a year there is little or no difficulty in showing a good profit on the running of a service of new motor omnibuses, but maintenance charges increase with the age of the vehicles, and it will be of interest to watch the results of those undertakings which are dependent on motor omnibuses alone. For some years to come horse traction, which has given us such good results in the past, will be the backbone of our company."

ONE Joseph Pilkington, of Preston, is evidently accustomed to being unexpectedly tickled, for when the motor car driven by Mr. F. W. Mellowes, of Sheffield, passed him at a high rate of speed, he declared in evidence at the Preston police court that the "waft" of wind it produced was such that he thought someone was tickling him from behind. When he discovered this was not the case, but that a rapidly driven motor car was the cause of the sensation, he had to sit down on the pavement to recover from his terror! But the motorist was fined £5 as the result of this graphic and obviously *utterly truthful* evidence—evidence worthy of a niche in the temple of fame, alongside that of the road-mender who stoutly maintained that his shovel had been whirled three times round his head by a blast of air due to a similar cause.

HERKOMER TROPHY.—The start of Mrs. Gertrude Eisenmann, the only lady driver in the Motor Cycle Race in the Forstenrieder Park.

MOTOR CYCLING.

Auto-Cycle Club.—In connection with the six days' reliability trial, the judges have recommended to the Committee that the following awards (arranged in alphabetical order) be made:—

First Class Certificate and Gold Medal.

BICYCLES.—No. 1, $3\frac{1}{2}$ -h.p. Brown; No. 13, $2\frac{3}{4}$ -h.p. Phellon and Moore; No. 14, $3\frac{1}{2}$ -h.p. Phellon and Moore; No. 22, 3-h.p. Singer; No. 19, 3-h.p. Triumph; No. 2, $2\frac{3}{4}$ -h.p. Vindec Special; No. 3, $3\frac{1}{2}$ -h.p. Vindec Special.

TRICARS.—No. 33, 10-h.p. Lagonda.

First Class Certificate.

BICYCLES.—No. 25, $2\frac{3}{4}$ -h.p. Ariel; No. 8, 3-h.p. Bradbury; No. 21, $3\frac{1}{2}$ -h.p. Noble; No. 5, $3\frac{1}{2}$ -h.p. Ortona; No. 9, $3\frac{1}{2}$ -h.p. Rex (fitted with Halle spring wheels); No. 15, $3\frac{1}{2}$ -h.p. Rex; No. 6, $2\frac{1}{2}$ -h.p. Werner.

TRICARS.—No. 30, 6-h.p. Quadrant Carrette; No. 31, 6-h.p. Riley.

Second Class Certificates.

BICYCLES.—No. 11, 5-h.p. Ariel (twin cylinder).

TRICARS.—No. 27, $2\frac{1}{2}$ -h.p. Mototri-Contal.

Third Class Certificates.

BICYCLES.—No. 16, $3\frac{1}{2}$ -h.p. Riley.

TRICARS.—No. 29, $4\frac{1}{2}$ -h.p. Riley.

Appearance Prizes.

BICYCLES.—1st, No. 2, $2\frac{3}{4}$ -h.p. Vindec Special; 2nd, No. 1, $3\frac{1}{2}$ -h.p. Brown.

TRICARS.—1st, No. 33, 10-h.p. Lagonda.

Motor Cycle Cup.—In consequence of the notice, that no permit had been given for this event, served by the Auto-Cycle Club on the clubs which had entered teams for this contest, organised by the Motor Cycling Club, all the clubs withdrew, leaving the Motor Cycling Club team to run over the selected course by themselves. The club team consisted of J. van Hooydonk (Trimo), E. March (Trimo), A. Candler (Quadrant bicycle), C. W. Brown (F. N. bicycle), H. Booth (bicycle). The road for the 100 miles "non-stop" run started at Walton, following the regular route of the club to Stevenage, Royston, Puckeridge, and Wades Mill. Heavy rain fell soon after the start, and before 50 miles had been covered Hooydonk, Fox, and Candler were put out by stopping. The remainder of the team, after lunch, completed the second 50 miles successfully, the total team marks being 375, beating the figures for the previous year.

THE death, at the age of forty-six, of Michel Werner, the designer of the Werner motor bicycle in 1897, is announced from Paris.

PUBLICATIONS RECEIVED.

The Law of Heavy Motor Cars.—By Donald H. Pettitt. London: Jordan and Sons, Ltd., 116, Chancery Lane. Price 3s. 6d. net.

Harwich and Dovercourt.—The official publication of the Corporation. Edited by Geo. W. May. London: The Health Resorts Association, 2, Gray's Inn Road.

Falmouth.—The official publication of the Corporation. Edited by Geo. W. May. London: The Health Resorts Association.

Hastings.—The official publication of the Corporation. Edited by Geo. W. May. London: The Health Resorts Association.

Racing Rules for Motor Boats, 1905.—New York: National Association of Engine and Boat Manufacturers, 314, Madison Avenue.

Souvenir of the Auvergne Circuit: Gordon-Bennett Cup, 1905. London: The Michelin Tyre Company, Limited, Sussex Place, South Kensington.

Lowestoft.—Published under the authority of the Lowestoft Regatta and Town Advertising Committee, London Road, Lowestoft.

The Book of the Motor Car.—By R. T. Sloss. London: Sidney Appleton, 25, Bedford Street. Price 10s. 6d. net.

My Friend the Chauffeur.—By C. N. and A. M. Williamson. London: Methuen and Co. Price 6s.

The Motor Year-Book, 1905.—London: Methuen and Co. Price 5s. net.

The Law of Motor Cars and Motor Cycles.—By D. H. Pettitt. London: Jordan and Sons, Ltd. Price 3s. 6d. net.

Touring Club Italiano Annuario dell'Automobilismo, 1905-1906.—Milan: Touring Club Italiano.

Automobile Club di Milano, Annuario, 1905.—Milan: A.C. di Milano.

L'Automobilista.—By G. Pedretti. Milan: Ulrico Hoepli. *Adressbuch der Automobil-un. Motoren Industrie (Europa) 1905.*—Berlin: F. Walloch. Price 6s.

The Handy Hotel Guide, 1905-1906. (11th Edition). London: The Hotel and General Advertising Company, Ltd., Shaftesbury Avenue. Price 2d.

Institute of Marine Engineers, Incorporated. Session 1904-1905. Sixteenth Annual Volume. London: Institute of Marine Engineers, 58, Romford Road.

Institute of Marine Engineers, Incorporated. Session 1905-1906. Vol. XVII. London: Institute of Marine Engineers.

Catalogues.

Friswell's Little Picture Book.—London: Friswell, Ltd., 1, Albany Street, N.W.

Samson Leather Treads and Tyres.—Theo Masui, 1, Hanover Court, W.

Raincoats, Waterproofs, and Motor Clothing, 1905-1906.—The Dunlop Rubber Company, Ltd., Aston, Birmingham.

1905 Silent Sunbeam.—The Sunbeam Motor Car Company, Ltd., Wolverhampton.

Motor Bodies.—Alford and Alder, 53, Newington Butts, S.E.

CORRESPONDENCE.

* * *The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.*

"A COUNTY BENCH."

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Having ridden and driven horses for thirty years both in London and the country, besides taking many driving tours and cycling extensively, I write to-day as no youthful novice lacking road experience.

For a whole year past, being one out of the many pioneers in the great traffic development of this new century, I have given up a stable in favour of driving my own motor car, and have travelled many thousand miles all over the South and Midlands of England, with safety to the public and satisfaction to myself and family.

Last July I was caught for the first time in a "Police Trap." It was the usual clear, open, straight, stretch of level, without cross-roads; no danger was alleged, merely a speed said to exceed (by four miles per hour, being eight seconds in the measured quarter-mile) the pace at which the car was by law entitled to travel.

Passing over, for the present, the absolute impossibility of measuring these eight seconds accurately without electricity and with only one stop-watch I confine myself to one point of the "trial."

Travelling too fast is a technical breach of the law. It is not a crime, but an offence created such by Act of Parliament, and therefore in a different category to theft or the grosser forms of wrongdoing.

Yet, every driver or gentleman summoned was placed in the dock, barred in, and guarded by policemen! This dock had, that morning, whilst motorists waited their turn for three hours on side in the village street, been occupied by "drunks and disorderlies," assault cases and the like.

A County Bench may be indebted for their interpretation of law to their clerk, and to the police exclusively for facts, but at least their methods are their own.

There is this extenuation; neither a village courthouse nor its court are quite suitable for trying issues of any nicety as to facts or feelings. The one was constructed and the other appointed to deal with simple country cases—such as poaching; therefore, county justices are naturally prone to think that anything caught in a trap must be noxious, and to regard a stop-watch as a fetish, and to be profoundly impressed when one of their rustic constables, under oath, talks about "fifths of a second."

But to anyone who is making a first acquaintance with these rural dispositions the whole proceeding gives a most disagreeable impression. Defendants, on a purely technical and practically unprovable charge, pleading, from a criminal dock, for that form of mercy which in a less elementary court would be termed justice, present a painful spectacle which discredits the English magistracy.

Moreover, to men, or even ladies, who may be about to set up a car, the possibility of such discourteous treatment may well give pause.

Your obedient Servant,
LEVESON SCARTH.

August 23rd.

VAN TRIALS POSTPONEMENT.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Having received notice from the Automobile Club that the Van Trials, for which we had entered, have been postponed by the Committee until next year, we have thought well to address a letter to the secretary, of which we enclose a copy. We cannot help thinking if the club had all arrangements in order, a very interesting trial could have been carried through with the number of vehicles that were entered.

Yours faithfully,
HARRY PARSONS,
The Parsons Motor Co., Ltd.

August 26th.

[Enclosure].

The Secretary of the Automobile Club.

We beg to acknowledge with thanks your favour of the 24th inst., in which you convey to us the decision of the Committee to postpone the Van Trials until the year 1906, in reply to which we can only say that we regret exceedingly the decision

arrived at, not only because we were under the impression a fair number of entries had been received, in which presumably we were wrong, but also because it hardly seems fair that those firms who had conformed to the conditions and got their vehicles ready should be handicapped by still another postponement, when they may be, as in our case, perfectly ready to start the trials at any moment.

Perhaps we may be allowed to point out that we know for a fact that many orders for light vans were being held back pending the results of these trials, and therefore it means to us, we fear, considerable loss of trade, in that firms, who were waiting to see how a van like ours behaved, will still further delay their order. The obvious reply to this is, no doubt, that the Automobile Club has ostensibly nothing to do with trade interests, but all the same it appears to us that the deferring of these trials is also partly due to representations of firms who do not happen to have conformed to the regulations, and got their vehicles ready for the trials. It appears to us, therefore, that deprived as are those firms who entered from making a willing demonstration of their vehicles, it would be only fair to publish a list of those who had entered for it, and there we suppose the matter must rest.

The proximity of the exhibition is put forward as one reason for delay, but surely possible purchasers visiting that exhibition would appreciate being able to examine and possibly purchase a van which had done creditably in the trials, rather than look at a vehicle which, through no fault of their own, the makers had been unable to publicly demonstrate.

In writing to you thus we are aware that it is not a foregone conclusion that our vehicle would have performed in every way satisfactorily, but we were quite open to go in and compete, having every confidence in our van, and to be judged according to results.

In conclusion, we were aware our entry was delayed till the last moment, but this was solely due to the fact of there being some difficulty in reaching one of our directors in the matter.

Trusting, therefore, you will favour us with any remarks upon these notes, and apologising for troubling you.

VISITORS to the Doncaster Races should beware of a police trap which will, in all probability, be established at Bawtry.

A SIDE paraffin lamp, found in Avenue Road, St. John's Wood, about three weeks ago, was brought into the St. John's Wood Motor Works and Garage, 20 and 22, Finchley Road, N.W. (opposite Marlborough Road Station) on Thursday last. Owner can have same on giving description.

Mr. Wm. Beardmore, of Tullichewan Castle, Dumbarton, has just added to his stud the fine 24-h.p. Thornycroft Car, which we illustrate above. Mr. Beardmore, in addition to this acquisition, is the owner of a 6-h.p. Wolseley, a 12-h.p. Arrol-Johnston and a 20-h.p. Thornycroft, and for marine work has a 25-ft. Thornycroft motor boat, which he uses extensively on Loch Lomond.

The latest acquisition of H.R.H. the Princess of Wales. This fine specimen of car is a British-built Daimler, the body work having been executed by Mr. H. J. Mulliner.

The Princess of Wales's New Daimler.—The latest car of H.R.H. the Princess of Wales, which we illustrate this week, is one of the most up-to-date Daimler carriages, and is a fine type of combined luxury and utility. Mr. H. J. Mulliner, of Brook Street, was entrusted with the body work of the car.

The Princess has taken a great interest in the building of this carriage, and personally instructed Mr. H. J. Mulliner with regard to many details embodied in it. It will be seen that the roof of the carriage extends over the driver's seat in the form of a canopy, with a glass wind-shield over the dashboard. This shield slides up into the roof by a very neat knuckle-joint arrangement, which entirely does away with any possibility of the rattling so frequently associated with this type of wind-shield. The placing of a long platform on each side renders entrance to the car extremely easy. There is also a folding step which reaches within 10 inches of the ground. The body is of Limousine type, and is constructed of light ash framing, with aluminium panels. All the door and corner panels are hammered out by hand, giving the graceful curves depicted. The window frames and all fittings are of special figured rose-wood, French polished. The interior is upholstered in royal colour, *i.e.*, dark blue, the cushions and back being in morocco. The roof is covered with blue cloth. The upholstery is finished in an especially luxurious manner, the internal fittings and conveniences, such as silk blinds, trays, pockets, racks, watch case, speaking tubes, &c., combining to assure a high degree of comfort and appearance. Above the main seat electric

lights are fixed, the switches of these being within easy reach of the occupants. On the main seat accommodation is provided for three, and two additional seats, which can be let down when not required, are available. Both the side windows and the window behind the driver's seat let down into the body, thus giving all the benefits of an open carriage. In order to prevent possibility of dust reaching the interior the rear window is made a fixture. The boot under the main seat has an opening at the back, and into this boot is fitted a picnic basket, provided with all the necessaries for an *al fresco* meal. A spare-tyre carrier is fixed on the right-hand side, and this can be detached when the car is not running.

The Princess of Wales particularly requested Mr. H. J. Mulliner to, as far as possible, use English material in the construction, consequently everything connected with the car is of English make.

THE motor car which was purchased by the Edmonton Board of Guardians for conveying persons to the infirmary and asylum, has been running up a pretty bill for repairs, having cost, it would appear, during the last nineteen weeks, £127, and a further proposal to spend another £20 on it was made at a recent meeting. On this occasion Mr. Jolly very sensibly pointed out that all the trouble was due to the Board having in the first instance purchased a cheap car instead of having bought a really reliable vehicle as recommended to do by a committee.

One of the latest 15-h.p. four-cylinder De Dion Bouton Cars is given in the above photograph and is fitted with an English built tonneau carriage with cape cart hood, &c. This car, which is of particularly good design, has been secured by Mr. P. J. Ford, of Edinburgh. A convenient improvement is the glass wind shield, the top half of which is made to hinge outwards from the top and is supported by the slides seen in the photograph. By this means the shield can be set at an angle which gives protection to the driver during rain storms, and at the same time allows him a clear view.

HERKOMER TROPHY.—How petrol is pumped from big tanks into cars and sold by weight in Germany. This view was taken by Mr. Edward Manville, with the British team of Daimler cars, en route from Strassburg to Munich.

IN the course of a paper on "Motor Cars for Medical Officers," read at the annual provincial meeting of the Society of Medical Officers of Health at Lancaster, Dr. Herbert Jones, Medical Officer of Health for Hereford, while pointing out that the existing destruction of roads is mainly due to horse traffic, attributed a large number of diseases, notably epidemic diarrhoea, to the infection and insanitary conditions produced in towns and elsewhere by the requirements of horse-stabling. He concludes that the universal adoption of the automobile for traffic purposes will have a most profound effect upon the health of the community.

THESE views are borne out in a remarkable manner by some statistics published by Dr. McCleary in his report on the health of the Metropolitan Borough of Battersea, a work to which we referred last week in these columns. Dr. McCleary points out that according to Veterinary-Captain Smith's "Manual of Veterinary Hygiene," the average amount of excreta passed by a horse in twenty-four hours is about 30 lbs. of solid and about 5 quarts of liquid matter, and one-half of solid and one-fourth of the liquid matter is deposited in the streets. Assuming, however, that the amount of excremental matter deposited in the streets is equal to one-third of the solid and one-fourth of the liquid matter, we arrive at the conclusion that over 362 tons of solid, and over 23,377 gallons of liquid horse manure are deposited in the streets of London every day, while the daily amount of manure deposited in stables is over 725 tons of solid matter, and 76,131 gallons of liquid matter." It is no wonder that with one eye on such facts as these, and with the other eye on the innocuous characteristics of the automobile, our medical officers of health should be commencing to exclaim, "Away with the horse!"

GALLEY, who has concentrated attention upon himself by his masquerades as the Baron de Graval and his cruise to Brazil with the bullion he lifted from the bank, is, it would appear from a French contemporary, an author on automobile topics. He has, at any rate, written "A Treatise on Motor Cars for the use of Society People," and MSS. were found at the flat he recently occupied, entitled "A Study on Navigable Balloons," and "The Future of Motor Boats." The enterprise of Galley is well illustrated by his grappling these subjects, as it is stated he has never been in a motor boat or driven a motor car. Upon his knowledge of navigable balloons no data are forthcoming.

MR. C. J. GLIDDEN is probably the most indefatigable globe-circler in existence. He has hardly finished one tremendous tour when he proposes starting off on another. As our readers know he has already been once quite round the world, covering 25,100 miles in twenty-four different countries, and he now proposes to go round the world again, traversing India, Ceylon, Burma, Siam, the Philippines, China and Japan. Mr. Glidden intends to leave America on October 24th, when he will cross to London, and leave Marseilles for Bombay by the "Mooltan," which leaves the former port on November 10th. Mr. Glidden, who will be accompanied as usual by Mrs. Glidden, intends to return to America from Japan by way of San Francisco, to take part in the "Glidden Touring Competition" in the U.S.A. in 1906.

Lincolnshire A.C.—Capt. and Mrs. Glead, of Park House, Donington, were "at home" to the members of the Lincolnshire Automobile Club, on Thursday, August 24th. The delightful weather which prevailed enabled cars to travel long distances. A hearty welcome was extended to all comers. *Al fresco* tea was served in the picturesque grounds, which are just now in the zenith of their summer beauty. Croquet and other lawn games were provided, and the pleasant outing was greatly enjoyed.

Meet of the Lincolnshire Automobile Club at Park House, Donington, the residence of Captain and Mrs. Glead.

successful it is intended to add a luggage equipment, and so arrange for a regular passenger service.

ALTHOUGH the firm of De Dietrich is best known here in association with the justly famous cars under that name, they are primarily builders of much heavier vehicles, as witness their supplying a number of carriages for the Electric Underground railway of London. These District Railway cars are built entirely at Lunéville, in the same works as the De Dietrich cars, with the exception of the electrical apparatus, which is fixed in England. The cars are completely mounted at the works, sent on rails up to Rotterdam, and shipped thence by special steamers, eight at a time, to London. Messrs. De Dietrich have already delivered fifty-two of these

SCENES ON THE GLIDDEN TOUR.—One of the White cars paying at one of the many toll gates.

THE London Motor Omnibus Company, which has made such a conspicuous success with running its Vanguard service of 'buses, is undertaking an interesting experiment. It is arranging to run to Brighton and back daily for a week with a Vanguard 'bus, for which the fares will be practically those charged by the Brighton coaches, viz., 12s. 6d. return outside, and 10s. inside. The first run took place on Wednesday last, the 'bus starting from Northumberland Avenue at half-past nine in the morning, and returning from Brighton about three in the afternoon. About four hours was allowed for the journey of 50 odd miles. The object of the company is an experimental one, as they desire to ascertain how far the modern motor 'bus can be employed on road service to compete with railways. Should the experiment prove

SCENES ON THE GLIDDEN TOUR.—A short cut through a stream.

vehicles and are now finishing sixteen more, which will be delivered shortly.

QUITE exciting adventures befel General Booth on his motor car tour in the north. Coming back from Hawick and crossing the Cheviot Hills the party lost their way and took to rough tracks and the grass across the mountains, which the cars negotiated with extraordinary success. The lost motorists crossed into England at Carter Fell, where the boundary was marked by a stone wall and the ruins of an old toll gate, after which they struck a road that brought them ultimately back into civilisation, marked by the sudden apparition of a gibbet with a dummy head hanging from it. The successful manner in which the cars negotiated the rough mountains is certainly a testimonial to the capabilities of the up-to-date automobile.

SCENES ON THE GLIDDEN TOUR.—Memorial Bridge near Milford.

the unsupported statement that the assaulted one extruded his tongue as justification for the assault. In future probably all hooligans will make the same allegation.

FROM October 1st the borough of Southport will be constituted a county borough, and therefore the Local Government Board have allotted them the new index mark of "F.Y."

THEY are evidently a thirsty community who form the parish council of Ringmer, near Lewes, where the steeplechases are held. The County Council has recently put up danger signals on some of the steep hills, and the red triangle adopted has so reminded the parish councillors of the similar symbol appearing on Bass's bottled ale, and has thus excited desires on the hot and dusty days of summer which there was nothing present to assuage, that they are pressing for the substitution of some other form of signal.

As an alternative, we would suggest the provision of a supply of Bass's bottled ale in the neighbourhood of the suggestive signal posts.

SCENES ON THE GLIDDEN TOUR.—Where they burned the witches at Salem, U.S.A.

W. K. VANDERBILT has just purchased a 40-h.p. De Dietrich car.

As an example of what the magisterial mind can accomplish, the following is instructive:—Mr. G. H. Smart, of Kew, was charged at Andover, and "duly" fined £5 and costs, for driving a motor car to the common danger. He declared that he was only travelling about 10 miles an hour. Thereupon the chairman (Colonel Harman) of the Bench declared that at this particular place any speed over *two miles* an hour was, in his opinion, dangerous. This was on the main road running straight from Andover to Salisbury!

THERE is an hotel on the top of the Weissenstein in the Jura, at a height of 4,000 feet, with which the sole means of communication is a little cart which is dragged daily by four horses up a road which boasts a gradient of over 1 in 4. The inmates of the hotel were recently astonished one morning to find a little 6-h.p. Swiss built automobile standing outside the door. As it had made the climb, with three passengers, under one hour, it is not surprising to learn that the hotel will probably adopt the automobile as a means of communication with the lower world in the near future.

A VERY extraordinary case came before the Mansion House Police Court last week in which a city merchant of the name of Arthur Bagshawe was alleged to have assaulted a motor-car driver of the name of John Tambourne by striking him in the face. Mr. Bagshawe admitted the offence, but the summons against him for the assault was dismissed. In mitigation of his offence he alleged that the motor-car driver was going slowly through the traffic, and that when he remonstrated with the driver for nearly running over him, the latter made an impertinent remark and extruded his tongue. There was no confirmatory evidence of the extrusion of the tongue of the motor-car driver, and Sir Horatio Davies, the magistrate who "tried" the case, gave clear proof of animus, as he said, "I know it is very trying. I was nearly knocked down myself by a cyclist the other day immediately opposite the Mansion House, and if I had not knocked the man off his bicycle, he would have run over me. I shall dismiss the summons." Had the victim of the assault been anything but an automobilist, we feel convinced that the magistrate would not have accepted

Viscount Churchill, Lord-in-Waiting to His Majesty the King, who for a long time has been an ardent supporter of the automobile movement is shown in our photograph at the wheel of his 24-h.p. Napier car which he has invariably driven himself from the time when he acquired this carriage, about the middle of last year. Lady Churchill, who also drives this car, both in the London streets and in the country, is also seen in our photograph.

ROAD-TARRING experiments which have been carried out on limestone roads in Glamorganshire, under the auspices of the Porthcawl District Council, have proved most successful. It seems that limestone as a road metal amalgamates particularly well with tar.

A FRENCH contemporary, in giving an account of the automobile cabs recently put on the London streets, and comparing them with "hansoms," has got hold of the word "hippomobile"—by the wrong letter, having converted that euphemism for the "gondola of the London streets" into "kippomobile." Perhaps this is a subtle method of commenting upon the imperfect stability of these conveyances.

WE have to congratulate the Chertsey Bench. It is seldom that we have had to do so, and more than once we have been reluctantly compelled to express the strongest dissent from their findings and proceedings. We are, therefore, the more pleased to discover ourselves in full agreement with them, especially as the case to which we refer is of wide general interest and importance to automobilists, and causes regret that the decisions of one magisterial court do not constitute precedents for others. Inspector Jarrett, in what was perhaps humourously termed "the execution of his duty" at Egham (he was, as most people will remember before his "translation" to that sphere of activity, the champion police-trap-organiser of the Ripley Road), had arranged a police trap, and got it in full blast in the neighbourhood of Chertsey. Mr. A. T. Slaymaker, a motor car driver of Chelsea, detected the trap, drew up his car at some distance from it, and warned approaching motorists of its existence, who thereupon slowed down so palpably that even Jarrett, in his new "Avatar," as Inspector, was not able to "charge" them. Presumably Inspector Jarrett had not been able to import from the Ripley Road the celebrated children who always figured in, and produced, or at any rate secured, conviction in his former cases. So much irritated was he by the failure of his trap that he summoned Mr. Slaymaker for obstructing the police in the execution of their duty. He informed Mr. Slaymaker at the time that he would take this course, and Mr. Slaymaker very naturally and properly observed, "I have not spoken to you. Your duty is to prevent people from breaking the law." The Chertsey magistrates came to the conclusion that there was no obstruction in the sense contemplated by the Act, and dismissed the summons. It is, of course, preposterous to suggest for a moment that such warning is in any way obstruction of the kind referred to, and summonses taken out under such circumstances only display the irritation of the police. Unfortunately, however, they have been successful with one or two benches of magistrates.

IN another case, however, Inspector Jarrett himself vindicated the rights of the road. Mounted on a cycle, he was endeavouring to proceed along a narrow thoroughfare near Chertsey when he

asked a Staines farmer driving a horse and trap to make way for him. This the courteous farmer refused to do, for which obstruction he was subsequently fined 10s. by the Chertsey Bench.



NEW COMPANIES REGISTERED.

[Taking powers to manufacture or deal in motors, motor cars, or accessories, either as their principal or parts of their objects.]

B. W. (Start Cold Paraffin) Carburettor Company (Limited), 9, Southampton Street, Bloomsbury Square, W.C.—Capital, £100,000 in £1 shares. Chief object, to adopt an agreement with A. J. Watling, C. H. Bryant, and J. A. Malcolm, and to carry on the business of mechanical engineers, manufacturers of carburettors, automobiles, &c.

Corre Depot (Limited), 311, Oxford Street, W.—Capital, £2,000 in £1 shares. Object, to act as sole vendors in the United Kingdom of the productions of Automobiles Corr   (Limited), of 311, Oxford Street, London, and 37, Rue de Villiers and 12, Rue de Rouvray, Neuilly-sur-Seine, France. First directors, P. Baxter and J. Edwards.

F. W. Peckham Motor Syndicate (Limited).—Capital, £1,000 in 500 "A" and 500 "B" shares of £1 each. Object, to sell motor cars under contracts (1) with the E. R. Thomas Motor Company, of Buffalo, New York, and (2) with Richard Irvin and Co., of New York. First directors, F. W. Peckham and R. L. Powell.

Finchley Motor and Engineering Company (Limited).—Capital, £2,000 in £1 shares. First directors, B. T. Hamilton and J. G. Gittos.

P. W. Watson and Sons (Limited).—Capital, £8,500 in £5 shares (400 preference). Object, to acquire the business of carriage, coach, cart, and motor car builders at Lowestoft and Diss. First directors, P. W. Watson, P. W. Watson, jun., and L. D. Watson.

Rekrab Motor Manufacturing and Engineering Syndicate (Limited).—Capital, £5,000 in £1 shares. Chief object, to adopt an agreement with A. Barker, and to carry on the business of motor manufacturers, &c.

The Scottish Fishing Boat Power Supply Company (Limited), 245, Union Street, Aberdeen.—Capital of £10,000 in £1 shares. Object, to develop the sale of the central valve internal combustion engine for fishing boats.

United Manufacturers' Military and Motor Accessories (Limited).—Capital, £4,000 in £1 shares (1,000 ten per cent. cumulative preference). Object, to take over the business of manufacturers of motor and general clothing, &c., heretofore carried on by R. Starke, at 31, Golden Square, W., as the United Manufacturing Motor Clothing Company, and at 2, Brewer Street, W., as the Military and Motor Head-Dress Company. First directors, R. Starke (managing director) and J. Affleck.

A new Double Electric Landulette, just constructed by the Electromobile Company for Mr. Drysdale, of Buenos Ayres. The carriage work is by Binder, of Paris.

THE successful English Daimler cars, competing in the "Herkomer" contest, were, we learn, all fitted with "Castle" coils—one of the specialities of United Motor Industries, Ltd.

THE first four winning cars in the Herkomer Race were all fitted with Continental tyres, and we learn of the first twelve cars in order of merit no less than ten were shod with Continentals.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

17284. 6th August, 1904. Improved Speed Gears suitable for Motor-Driven Vehicles and the like. Charles V. Boys, F.R.S., 66, Victoria Street, Westminster, and William Williams, B.Sc., Glasfryp, Uplands, Swansea. This invention consists in an improved form of epicyclic change-speed-gear for tricar, quad and motor cycles, having provision for two or more speeds forward, quick and slow-foot pedalling speeds backward and forward, free wheeling and free engine running positions and for engine starting by foot pedalling or by manual power through the gear while the vehicle is at rest. It comprises an epicyclic three-speed reducing gear, a rotating gear frame carrying two or more planet groups, each comprising four planets, two of which mesh with two suns mounted one upon the other and provided with brakes, while the other two planets of each group mesh with other two suns arranged coaxially with the first mentioned suns, one of the second mentioned suns having an independently actuated brake or ratchet and a free wheel sprocket adapted to permit manual or pedal starting of the engine through the gear and forward and backward driving independently of the engine, and the other being connected to or arranged to drive the road wheel. There are four figures. Fig. 1 is a section on an axial plane through the centre of the gear. The power transmission pulley, *a*, is secured concentrically to an epicyclic framing, *b*, containing two or more groups of planets, each group comprising four planets, *c*, *d*, *e* and *f*, which are non-rotatable in relation to each other, but are revoluble together upon ball bearings, *g*, *h*, about axes, *g*, carried in the framing *b*. The four planet wheels gear with four sun wheels, *j*, *m*, *s* and *t*. The epicyclic frame, *b*, is provided with a sleeve, *k*, which passes over a fixed axle, *i*, or over a tube thereon, and is provided with ball bearings, *7*, *7*. Revolvably mounted on ball bearings, *8*, *8*, upon the sleeve, *k*, is a sun wheel, *j*, having a hub formed in two parts, *k* and *k'*, locked together in any suitable manner which will allow of the two parts being readily detached when required,

occupied by the high and low speed suns, and carries at its extremity upon ball bearings, *12*, a free wheel chain-driven sprocket, *r*, and a brake rim, *w*, having a brake, *w'*. If the high and low speed suns are locked by their respective brakes, *g* and *r*, the low speed sun, *m*, which has more teeth than the high speed sun, will be moved forward slowly. This it is enabled to do on account of its rim, *m'*, running free forwards whether the low speed brake drum is stationary or not, and the middle speed sun, *s*, is free to rotate forwards since the brake is off and the sprocket wheel free. The driven wheel, *f*, is thus rotated at fastest speed. If now the high speed brake is released, and the brake, *w'*, put on, the middle speed comes into operation. On releasing the brake, *w'*, the low speed comes automatically into action, the brake, *r*, being on. On releasing the high, intermediate and low speed brakes from their brake rims, the spring, *15*, being in the middle groove, a free engine running position is obtained, and on moving the low speed brake until the low speed sun is held, the low speed is obtained. While either of the lower speeds is in operation the high speed sun and the middle speed sun run idly backwards, which the latter is free to do without moving the foot pedalling gear on account of the free rim of the foot pedalling chain wheel.—August 10th, 1905.

17502. 11th August, 1904. Improvements in Change-Speed-Gears for Motor Cars. Kenneth S. Murray, 9, Duke Street, Portland Place, London. The driving shaft in this invention is made in two portions with a secondary clutch between pressed into engagement by a spring to drive through the higher speed gear, and means to automatically cause the disengagement of the secondary clutch and drive through the low speed gear on the occurrence of excessive load. There are eight figures. Fig. 1 is a part sectional plan. On the engine shaft the usual hand-operated mechanical speed-change-gear is disposed with, but the pedal-clutch is retained. In place of the ordinary mechanical speed-change-gear is interposed a secondary clutch and mechanism, and in addition to the usual bevel wheel working on the

MOTORING visitors to Southampton should bear in mind the garage of the Parsons Motor Company, Limited, at the Town Quay. The company have exceptional facilities for shipping cars from their jetty either to the Continent or the Isle of Wight, whilst the garage is available for those who are not taking their cars with them over the water. The firm were in charge of the transfer to Cowes recently of H.R.H. Princess Christian's 24-h.p. Landauette.

E F, a strong spiral spring, *K*, is mounted, one extremity of the spring bearing upon the back of the cone portion, *E*, whilst the other end of the spring extends over a part of the portion, *A*, of the engine shaft, and is received in a recess in a sliding ring, *k* (having a ball-race, *k'*, to take up thrust), a second ring, *k''*, is mounted, which may be moved by the driver of the car operating a lever. A sleeve, *R*, is formed on the bevel wheel, *P*, of the differential gear, in order to carry two bevel wheels, *P'* and *S*, which can slide but not turn on the sleeve, *R*. These wheels, *P'* and *S*, are connected together, and either can be caused to engage with one side of the bevel wheel, *J*, on the portion, *A'*, of the shaft. The bevel wheel, *P'*, engaged with the bevel wheel, *J*, conveys low speed reverse movement to the differential gear. The bevel wheel, *P*, has a pawl and ratchet movement interposed between its bevel rim and hub, so that it can over-run.—August 10th, 1905.

Patent Specifications Published. Applied for in 1904.

- Published August 17th, 1905.*
- 11,971. J. CLAY AND S. GOODALL. Internal combustion engines.
 - 11,971a. J. CLAY AND S. GOODALL. Production of combustible fluids for power purposes.
 - 14,042. HON. C. A. PARSONS. Production of high vacua and cooling by evaporation.
 - 16,334. P. MARTIN and others. Self-propelled vehicles and vessels.
 - 16,865. F. W. LANCHSTER. Motor cars.
 - 17,502. K. S. MURRAY. Change speed gears.
 - 19,006. D. CROWTHER and others. Steam generators.
 - 19,093. C. CHALLINER. Elastic tyres.
 - 19,761. J. HOPPER. Mechanically propelled vehicles.
 - 20,344. P. RILEY. Steering gear.
 - 20,497. P. RILEY. Clutches and brakes.
 - 20,635. S. T. RICHARDSON AND R. PRICE. Wheels.
 - 20,787. L. ZEIDLER. Spring forks for motor cycles.
 - 29,187. H. GUILLON. Electric igniters.

- Published August 24th, 1905.*
- 17,234. — BOYS AND — WILLIAMS. Speed gears.
 - 18,377. L. BAUCHOT. Transmission gear.
 - 18,615. J. CARPENTIER. Ignition coils.
 - 20,506. E. W. WALFORD. Carburettors.
 - 23,884. F. O. FARWELL. Hydro-carbon engines.
 - 26,988. T. G. ALLEN. Side-slip device.

- Published August 31st, 1905.*
- 17,296. M. BLIEDON AND J. H. DAVIES. Internal combustion engines.
 - 17,783. A. W. PRENTICE AND A. SHIELS. Variable speed mechanism.
 - 18,427. J. RETTIE. Variable speed gear.
 - 18,591. W. E. MARX. Variable speed gears.
 - 19,094. A. ROBERTSON. Friction clutches.
 - 19,387. J. W. I. CADETT. Transmission gear.
 - 20,860. P. RILEY. Change-speed gears.
 - 20,993. H. H. WOOD. Arrangement in wheels to absorb vibration.
 - 21,006. J. S. FOLEY. Resilient wheels.
 - 21,294. G. EGLOFF. Cooling device.
 - 21,384. F. G. HEATH and others. Hydraulic brakes.
 - 21,449. R. VOLKER. Rotary internal combustion motor.
 - 21,552. E. FAIRBURN. Non-skidding tyre cover.
 - 21,716. J. H. CLARK. Tyre covers.
 - 21,770. W. H. CARMONT. Motor cars or tractors.
 - 22,412. E. J. CASTIGLIONE. Carburettors.
 - 27,361. F. DE MARÉ. Carburettors.
 - 29,418. HOKSTANN GEAR COMPANY, LIMITED, AND S. A. HOKSTANN. Variable speed gears.

- Applied for in 1905.*
- Published August 17th, 1905.*
- 4,301. J. E. M. BRIEST. Carburettors.
 - 9,236. MASCHINENFABRIK G. LUTHER A. G. Means for cooling pistons.
 - 9,258. MARQUIS A. DE DION AND G. BOUTON. Governing arrangements.
 - 10,672. M. D. COMPTON. Carburettors.
 - 10,800. A. HERRISON. Friction clutches.
 - 11,437. L. FRIEDMANN. Steam generator.

as, for instance, by a key or pin in one part engaging in a through-way key seat or slot in the other part. Over these parts there is revolubly mounted upon ball bearings, *9*, *9*, another sun wheel, *m*, the teeth of the wheel, *m*, being cut on a free wheel rim, *m'*, which is free to run forwards. The wheel, *j*, is for the high speed and the wheel, *m*, for the low speed. Side by side on the hubs of the wheels, *j* and *m*, are arranged brake rims, *q* and *r*, respectively, which are actuated by brake bands, *q* and *r*, controlled by levers in any suitable manner, preferably, however, in such a manner that one lever controls both bands. Co-axial with the low and high speed suns, *j* and *m*, are two other sun wheels, *s* and *t*, on ball bearings, *10*, *10*, and *11*, *11*, which wheels gear respectively with planets, *e* and *f*, the sun, *s*, being for the intermediate speed and the wheel, *t*, being the driven sun. The driven sun is connected to a hub, *4*, which is mounted on the ball bearings, *11*, *11*, the hub either forming the hub of a road wheel, in which case the hub may have side flanges, *u*, *u*, for the spokes, *x*, *x*, the distance, *z*, being then made greater than that shown in the drawing to suit the width of the road wheel hub, or forming the hub of a transmission wheel, *3*, in which case the hub serves as a counter-shaft. The hub, *s'*, of the middle speed sun, *s*, extends to the opposite side of the casing from that

sprocket shaft, a smaller bevel wheel is fixed to gear with corresponding bevel wheels attached to the crown bevel wheel of the differential gear. Between the engine clutch and the secondary clutch the engine shaft is divided, and the portion *A*, to which the main clutch is attached, is enlarged in diameter at *B*, and screwed with a quick or multithreaded screw. The other portion, *A'*, of this shaft, on the extremity of which the small bevel wheel, *J*, is formed, is shown hollow, so that the end of the shaft passes through it, and the portion, *A'*, is fitted with a feather, *D*, on which the external cone, *E*, of the secondary clutch, E F, is mounted, so that *E* must turn with *A'* and can slide upon it. The portion, *E*, of the clutch is prolonged at *c*, and screwed internally to engage with the screwed part, *B*, of the shaft, *A*. On *A'* is a sleeve, *x*, on one end of which the large bevel wheel, *G*, gearing with the bevel wheel, *P*, of the differential gear, is formed or fixed, the internally coned portion, *F*, of the secondary clutch, E F, being formed or fixed at the other end of the sleeve, *x*. When the secondary clutch is disengaged, the engine shaft, *A A'*, is capable of turning within the sleeve, *x*, and the sleeve with the wheel, *G*, and coned part, *F*, of the clutch is capable of turning on the engine shaft, *A A'*. On the prolongation, *c*, of the coned portion, *E*, of the clutch,

The Automotor Journal, September 9th. 1905.

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TOURIST TROPHY RACE IN THE ISLE OF MAN.—A view of Ramsey Harbour. Ramsey is one of the important points on the course.

Photo by G. C. Cowen, Ramsey.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Sept. 9 ...	Hill Climb, Cars and Cycles (Southern Motor Club).
Sept. 14 ...	*Tourist Trophy (Isle of Man).
Sept. 15 ...	*Daily Graphic Cup (Isle of Man).
Sept. 16 ...	Hill Climb, Tricars (Southern Motor Club).
Sept. 16 ...	Scottish A.C. Hill Climb.
Sept. 18 ...	*Van Trials.
Sept. 27 ...	Henry Edmunds Hill-Climbing Trophy Race.
Sept. 28-29-30	Motor Boat Burnham-on-Crouch (B.M.B.C.).
Sept. 30 ...	Auto Cycle Club Race Meeting, Crystal Palace.
Oct. 7 ...	Albert Brown Cup (Motor Cycling Club).
Oct. 7 ...	Scottish A.C. 100 Miles Run.
Oct. 14 ...	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17	*Quarterly 100 Miles Trials.
Nov. 17-25 ...	Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.	
Sept. 2-10 ...	Brescia Automobile Meeting.
Sept. 3-10 ...	Royan Meeting.
Sept. 10 ...	Tri-Car Competition (L'Auto).
Sept. 10 ...	Vincenzo-Florio Cup.
Sept. 11 ...	British International Cup (Motor Boats Arcachon).
Sept. 16-17 ...	Ventoux Hill Climb.
Sept. 19 ...	½ Litre Consumption Trials (Motor Cycles).
Sept. ...	Motor Bicycle Race (French Ardennes).
Oct. ...	Vanderbilt Cup.
Oct. 1 ...	Chateau Thierry Hill Climb.
Oct. 15 ...	Gaillon Hill Climb.
Nov. 3 ...	French Voiturettes Trials (L'Auto).

* Automobile Club of Great Britain and Ireland Events and Papers

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PASSING EVENTS.

The Melting of the Magisterial Mind.

THAT as the automobile became a more and more familiar means of getting about, the hostility and partiality of magistrates would become tempered by sweet reasonableness is a belief that we have always shared. Sooner or later we felt certain that most benches of magistrates would come to include at least one or two motor car owners, while other Rhadamanthi would find amongst their friends many motor car owners. They are, therefore, realising that automobilists are no worse than other people, that they do not ill-treat their wives, or assault the police, and on the whole, when you get to know them, are often enough pleasant fellows, and have even become pleasanter since they purchased motor cars. Therefore Rhadamanthus is becoming inclined to scepticism when asked to believe that policemen are always right and automobilists always wrong. That this better spirit is becoming prevalent amongst the holders of commissions of the peace has been well illustrated recently by several benches of magistrates. It was only last week that a driver in the employment of the Amalgamated Portland Cement Companies of the Medway Valley was let off at Maidstone on consenting to pay the costs of the prosecution, and an even more notable case occurred recently at Settle. Mr. R. Duckworth had been haled before the Bench on the usual charge of exceeding the speed limit, and he had pleaded guilty, when, to his no small astonishment, after a police sergeant had maintained that "The defendant, your Worships, covered the measured stretch

of 1,257 yards at a speed which works out at precisely 25 miles an hour" (the necessary corroborator being also produced), his case was dismissed. One of the magistrates said that the mere opinion of two people as to speed was quite worthless, whereupon the clerk observed that the defendant had already pleaded guilty. Nevertheless the Bench dismissed the case. In another instance at Abergele, an offender was in the first instance fined £2 for driving recklessly, and the magistrates at first refused to endorse his licence; when it was pointed out to them that they were compelled by the statute to do so, they made some very sensible remarks on this absurdity, and in consideration of the fact that they could not refuse to endorse, they reduced the fine to 10s. At Hornby Petty Sessions, too, quite a number of similar cases were dismissed absolutely, some with very strong expressions of disapproval, from the Bench, of the action of the police.

Now, these cases may, of course, be to some extent exceptional, but we are disposed to think that they are the kind of very significant straws which show which way the wind is blowing. After all it is the executive which decides whether a law should be administered sensibly or vindictively, and, we think, these cases show that there is a tendency on the part of magistrates to abandon their hostile and prejudiced attitude and to adopt a sensible, if not indulgent, method of interpreting the Motor Car Acts.

We hope the change in the magisterial mind will become general. There are dozens of Acts, as we have often pointed out, which if administered in the same spirit as the Motor Car Acts have been administered recently, would throw the whole country into confusion.

♦ ♦ ♦ The Coming of the Motor Cab.

THE London cab industry—if that is the term for it—has for a long time been in far from a flourishing condition. A symptom of this is provided by the meeting recently held between proprietors and cab drivers to discuss the general situation. It was widely recognised that improvements in other means of locomotion, the existence of trams, tube railways, and above all the advent of the motor 'bus, have made cabby's condition an even less happy one than it used to be. In fact, it is highly significant to find Mr. Fred Hill, the general secretary of the London Cab Drivers' Union, realising the situation so thoroughly as to be of opinion that the only future for the London cabman lies in his conversion into a motor cab driver. That we may look forward at an early date to a considerable extension of the present small number of motor cabs plying in the Metropolis is therefore probable. When the revolution takes place everyone will be undoubtedly thankful. The motor cab is as great an improvement on the time-honoured hansom as the motor 'bus is on its horse-trundled "rival."

This does not, however, mean the realisation of the gorgeous visions of a French contemporary, which we see some of the London papers have been copying more or less verbatim, that we are shortly to be astonished by the beatific vision of 2,000 motor cabs suddenly appearing from goodness knows where on the London streets, each of the vehicles being attended by two servants, the chauffeur and footman being attired in smart blue uniforms, with several hundred yards of braid and several bushels of buttons affixed. In spite of the braid and buttons, the high speed attained, and the

luxurious fitments, including electric light, of these visionary vehicles, the fares are only to be the same as those at present charged.

At present, the decidedly strict police requirements stand somewhat in the way of the rapid realisation of this millenniumlike vision, as we learn that some projected motor cabs have recently been rejected by the police authorities. It is well, therefore, that it should be recollected that all motor cabs designed for plying in the metropolis must provide ample facility for entering and leaving the vehicle, and must be able to be turned round in a circle of not more than 28 ft. across.

The changed attitude of the London cabman to the motor cab, as illustrated by Mr. Hill's remarks, is an encouraging sign of the times. The cab industry simply cannot continue as it is at present, and the sooner the cab driver takes the motor cab to his bosom, and becomes a motor cab driver, the happier and better off he will become.

♦ ♦ ♦ “(H)andover” Harman.

THERE are elements of entertainment in the situation when the victim of a police trap and a magisterial bench, instead of proving, as usual, a meek and silent sufferer, happens to possess the gift of literary expression, as he is then, at any rate, able to raise a smile at the expense of his persecutors.

The Hon. Stephen Coleridge, one of the latest victims of the notorious Colonel Harman at Andover, and the Hampshire police trap (in regard to which, as we last week related, Lord Portsmouth put up warning placards on his estate), has been exciting a good deal of amusement, both amongst automobilists and others, by his letter to the Press describing how he “fell among magistrates.” The evidence tendered possessed some entertaining features, one of the constables maintaining that on the road in question—one of the main roads in the county—a speed of more than four miles—against Colonel Harman's two miles—an hour was dangerous to the public. The best entertainment provided by the case, however, is in the delightful expressions which Mr. Coleridge has invented in his letter, some of which certainly deserve to live, chief amongst them being his description of police trap organisers as “magistrates' highwaymen” and “notorious fine-snatchers.” He has also provided a parallel expression for the “road-hog” by his description of the disguised policeman who lurks in ditches as a “hedge-hog.”

All this is excellent fooling, and is an example of a man making the best of what is, after all, a very unpleasant experience. The real value of Mr. Coleridge's letter, however, is his appeal to other motorists always to fight these cases through a solicitor where they can. His defence occupied the Andover Bench a whole morning, and, as he points out, the abuse of the executive involved in these persecutions would very quickly stop if every motor car case were equally stubbornly contested. We have often made this suggestion in the past, and no doubt it has only been for financial reasons that it has not been more universally acted upon.

♦ ♦ ♦ The Importance of Appeals.

AUTOMOBILISTS might advantageously extend the above tactics by appealing to Quarter Sessions in all cases where they have the slightest chance of succeeding.

They will probably be encouraged to do so by the fact that of twenty-eight appeals to Quarter Sessions in motor car cases made in 1904 no less than twenty-two have been successful. This is a tremendous indictment of Petty Sessional magistrates, for the Quarter Sessions never like quashing convictions unless in the case of the most palpable injustice. Of course the expenses involved in these appeals are heavy, running usually from £50 to well over £100, but considering the high proportion that have thus proved effective, and the tremendously deterrent effect on magistrates of successful appeals, motorists who can afford the money ought to consider it a duty always to make them, while it is to be hoped that in the near future the funds of the Motor Union will permit of the Union assisting or financing all appeals that seem to have a reasonable chance of success. At the same time it ought to be "one of the unwritten laws of motoring" that the wealthy defendant should refrain from applying for such assistance, so as to render it more widely accessible to those who cannot fight their battles for themselves.

What the Tourist Trophy will Teach.

THE Tourist Trophy, which will be competed for next Thursday in the Isle of Man, is at the present moment the event on which the attention of the automobile world is focussed. Nevertheless we feel convinced that there are a great many people who are still rather hazy as to the precise effect which the rules adopted will have in deciding what kind of a competition will be provided for the entertainment of those who go to witness it. We think we have made it clear to everybody (in previous numbers of the Journal) that the event will be a real race—although essentially for *touring* cars driven under what are (compulsorily) *touring* conditions. But we fear there are still people who imagine that because there are restrictions—restrictions of fuel, which will have the effect of producing a restricted or moderated speed—that it is not in the full sense of the word a race, and that, for example, powerful high speed cars are not allowed to compete. This is a mistake, for any car that complies with certain weight limits can compete, provided it is willing to restrict itself in the matter of consumption, and this very restriction, consequently, as we have repeatedly explained in the past, not only brings out the all-round merits of the competing cars, but also puts a considerable premium on skill and judgment in the management of the cars during the race. The event, owing to this very restriction, is certain to bring to light a quantity of suggestive data of value and use to everyone interested in the development of automobilism. That the results of fuel restriction on the running of cars on ordinary roads and hills are by no means foregone conclusions, is well illustrated by a number of experiments which we have conducted for some time past with some leading makes of tourist cars. These results, which we now place before our readers, will make it clear that the Tourist Trophy Competition will be a highly interesting one from every point of view, since there will be a magnificent sporting element that should prove highly attractive to the general public, as well as an invaluable indication of car-value for the prospective purchaser.

A variety of interesting and highly suggestive considerations emerge from our experiments. But the general reader need not go into them any further than he likes. The results are all put together in an easily comprehensible table, of which the first and fourth

columns alone need be consulted by those who merely desire to get a cursory view of the comparative results. Those who wish to go further into a very fascinating subject (and the number of those who are likely to do so is growing rapidly), will be able to consult our explanation and commentary on the table next week.

The article, of which we give the first portion in this issue, is therefore intended equally for the cursory reader, the ardent motorist, and the more determined student of the problem of present and future tourist-car racing on "T.T." lines, and will, we trust, increase the interest with which all will either watch the race, or, if they are not present on the course, subsequently read about it.

Royal Commission on the Motor Car Acts.—The full list of the members of the Commission is now announced as follows:—Viscount Selby, the Marquis of Winchester, Sir D. Harrel, Sir W. B. Forwood, Mr. E. R. Henry, Mr. W. J. Mure, and Mr. C. Monro. Captain C. Clive Bigham has been appointed secretary to the Commission. Sir D. Harrel, representing Ireland, is the only new name added since our first announcement on August 12th.

Employers' Competent Drivers' League.—We are glad to find that the action of the Automobile Club, in regard to organising examinations and giving certificates to competent drivers, has received the recognition and adherence of one, at any rate, of our most important automobile firms. Messrs. Jarrott and Letts, Ltd., write to inform us that they think the scheme of the Club should receive whole-hearted support, that they now make it a *sine qua non* that all their employees, whose business it is to drive cars, should pass the examination and obtain the club-driving certificates. With a spirit of marked generosity, Messrs. Jarrott and Letts are themselves paying the fees charged by the Club, while, in addition, they make it a rule never to recommend a driver to a client or purchaser of any of their cars unless he has obtained, and still holds, the Club certificate. Messrs. Jarrott and Letts are undoubtedly doing the right thing in adopting this course of action, and we hope before long to see all the principal manufacturers in the kingdom adopting a similar line, at least for a time. This will go further towards solving the driver problem and getting rid of that bugbear of our roads, the reckless driver who violates all the canons of good "road feeling" when out by himself, than anything else can do.

"ARISING out of this" we are decidedly sorry to find the *Spectator*, in an article which we are reluctantly compelled to admit is witty and amusing reading, making fun of the "Industrious Chauffeur." The industrious chauffeur, according to the *Spectator*, is a most charming person to have in your employment. He is willing to go to any amount of personal sacrifice and inconvenience to keep your car running (being an enthusiast), is always amenable to suggestions, and generally delightful. But he is said to be dogged by misfortune, and generally forgets some element indispensable to the success of a run, and usually has more accidents happen to him than his wicked and unregenerate brother who cares nought for his employer's interests, spends his employer's money like water, and ramps along the roads when he has a chance, to the terror of everybody.

OUR CANALS AND MOTOR BOATING.

(Continued.)

OUR CANALS.—A lock-keeper's house near Brookwood.

OUR CANALS.—The Basingstoke Canal, where it crosses over the London and South-Western Railway, near Aldershot (Frimley).

OUR CANALS.—An overgrown shady spot en route.

MR. CARTER, who has purchased the canal, has announced that he intends experimenting in this direction. There are some difficulties which he will have to encounter. Altogether the canal contains just over thirty locks. These are situated to some extent in bunches. There are two on the Wey Canal (the Wey Navigation Canal is its official title) before its juncture with the Basingstoke Canal, is reached, and then there are some twenty-nine on the Basingstoke Canal itself. It is estimated that by deepening the canal (its maximum depth at present is about five feet and its minimum in the middle about four when the reaches are all full of water) would enable the number of locks to be reduced by something between one third and one half. This would, of course, be an expensive proceeding, but considering the amount of time involved in passing through locks and the expenses also necessary for lock maintenance, it would probably prove a wise policy to adopt, and would certainly have the effect of increasing the attractions of the canal for motor-boatists coming up from the Thames.

The supply of water to the canal is another question which will have to be seriously considered. For some considerable time past, during very dry summers, the supply has been apparently inadequate, and many of the reaches have sunk so as to be imperfectly navigable. This is due to two causes. Some years ago what were assumed to be improvements were carried out by an engineer who was not fully familiar with canal practice. Some alterations were made in one of the upper reaches and the bottom of the canal was not adequately puddled. There has resulted here a very considerable leak, which has been the cause of much waste of water. It will certainly be essential to thoroughly puddle the bottom at this

point so as to stop leakage. There are a certain number of springs in the course of the canal which provide some of the water with which it is fed. But the original design was to rely upon a large and very opulent spring at Basingstoke, in connection with which a large pumping engine was established for pumping water into the canal. The supply of this spring is probably quite equal to the requirements of the canal, as the pumping engine has been run for a considerable period of weeks (at the time when the late canal company was in a position to run it) keeping the supply of the canal fully adequate, and the spring displayed no symptoms of exhaustion. With capital to improve or keep the pumping station in full action, therefore, there are good grounds for believing that the water supply would be adequate.

For the present owner of the canal therefore to successfully establish a regular motor boat passenger and goods delivery service, which would be a great boon to the district, it will be necessary probably for him in the first case to consider the question of water supply, and to decide how far it will prove adequate, while the next important point is to fully weigh the expense involved in deepening the canal, with a view to eliminating as many as possible of the existing locks.

(To be continued.)

THE Panhard and Levassor self-propelled workshop (a description of which appeared in our last issue), will, we understand, be in the Northampton district from September 8th. The headquarters will be the Plough Hotel, Bridge Street.

OUR CANALS.—On the Wey Navigation Canal, just above where the Basingstoke Canal turns off.

SPEED INDICATORS FOR AUTOMOBILES.—PART VI.

THE SOAR SPEED INDICATOR AND RECORDER.

THERE are but very few instruments at present on the market which, in addition to showing the actual speed of the car at all times, make a permanent record of the day's run, from which the actual velocity of the car at any particular spot and the variations in speed from mile to mile can afterwards be ascertained. Obviously a speed indicator forms an essential part of any speed recorder, and the chief difference between the two instruments is that the latter has a stylus or pencil instead of the pointer, which, in the former, indicates the speed by moving over a dial. Such a stylus will trace a line representing variations of speed, and the piece of paper on which the record is thus drawn is usually "calibrated," so that the speed in miles per hour can be read off direct.

Of such recorders there are two distinct types, viz., that in which the paper is moved by clockwork, and that in which the necessary motion is derived from some revolving portion of the propelling mechanism on the car itself. The result in the first case is to enable the speed at any particular time during the day to be afterwards seen, but, in the other case, *distance* instead of time forms the basis of the record. With either type of instrument a certain amount of calculation is necessary before the speed at any particular spot can be ascertained, but, of the two, the clockwork mechanism involves by far the greater labour.

The Soar recording mechanism is of that type which refers to distance instead of time. It is contained in the same case, and is operated by the same mechanism as is the speed-indicator proper. Fig. 16 includes two different views of the Soar speed-indicator complete, and also shows the mechanism removed from its case. In Fig. 17, larger views of the more important parts are given. It will be noticed that the speed-indicator belongs to the mechanical variety, and depends on the action of a centrifugal governor, in a similar manner to other instruments of the same class already described.

All the mechanism is enclosed in a cylindrical case, A, the lower part of which is enlarged to accommodate the rotating governor balls, C. About midway up the case is the dial, A¹, of the speed-indicator proper, above this, inside the case, is the recording gear, while at the top of the case there is another dial, A², which forms a mileage recorder. The mechanism is operated, in the usual way, by a flexible shaft which communicates with the front road wheels of the car.

The Speed Indicator.

One end of this flexible shaft is connected to the spindle, B, which passes up vertically into the case, A. Mounted on the spindle, B, are leaf-springs, C², which carry the governor balls, C. The governor balls, C, are connected, by the flexible steel-strips, C¹, with the guide-block, C⁴, which is free to slide up and down the spindle, B. The radial motion of the governor balls, C, therefore, causes a vertical motion of the guide-block, C⁴, and this in turn is made to give a rotary motion to the pointer on the dial, A¹. In order to make all the divisions on the dial more nearly equal to one

another for equal variations of speed (for they tend to get larger and larger as the speed of the car increases), an additional pair of helical springs, C³, has been provided, and these only come into action when the speed of the car exceeds a certain rate. By suitably proportioning the leaf and the helical springs it is possible to make all the divisions on the dial quite distinct, and to obtain at the same time a comparatively long range.

The connection between the guide-block, C⁴, and the pointer, F, on the dial, A¹, is made in the following manner. The upper end of the spindle, B, is hollow to receive a rod, D, and the guide-block, C⁴, is fixed to the lower end, D¹, of the rod, D, by a pin which passes through a vertical slot in the spindle, B. The vertical motion of the guide-block, C⁴, is thus directly communicated to the rod, D, which in turn converts it into a rotary motion of the spur-wheel, E,—carried in brackets on the stationary-plate, A³—by means of the rack, D², formed on the rod, D. The spindle of the gear-wheel, E, is geared to the spindle of the pointer, F, by the wheels, E¹ and F¹, this being done in order to enable the dial to be placed centrally in the side of the case, A.

The "Maximum Speed" Pointer.

In connection with the dial, A¹, is a maximum speed indicator, which consists of a supplementary pointer which remains stationary at the maximum speed that has been attained. The method of operating this needle is similar to that adopted in the "Smith" Speedometer already described, and a button, K, is provided for releasing the needle and enabling it to instantly fly back to zero, or to such other position as corresponds with that of the pointer proper.

Although the foregoing description applies to the speed indicating mechanism in particular, yet, on account of the inter-connection which exists between certain parts of the indicating and of the recording mechanisms, the apparatus

must essentially be considered as a whole. There are, in fact, certain details in the speed indicating mechanism that are less simple than they otherwise would be, for it has been necessary to modify their design in order to simplify the general arrangement in its entirety.

The Speed Recorder.

The speed recording mechanism—of which the principal members are indicated by the letters, D, G, and H, is mounted above the fixed plate, A². Its duty is to draw a line on a stationary sheet of paper that is placed round the inside surface of the case, A, the pencil being made to move slowly round over the paper, so that its position at all times corresponds with the distance covered by the car, and to move up and down across the paper, so that the vertical position of the line drawn by it will indicate the speed of the car in miles per hour.

The vertical motion of the pencil is obtained by connecting it to the guide-block, C⁴, on the spindle, B, so that this movement bears a direct relationship to the speed of the car. The horizontal travel of the pencil is obtained by bodily rotating the framework that carries it, and for this purpose the framework is geared to the

Fig. 16.—The Soar Speed Indicator and Recorder. View showing the instrument complete (on the right and left) and the interior mechanism (in the centre).

spindle, B, this causing it to rotate proportionally to the actual distance covered by the vehicle.

The pencil, H, is carried in a holder, H¹, which slides in a slot cut in the tube, G², and the holder is connected, on the inside of the tube, G², to a guide-tube, H² (Fig. 17), which serves to keep it steady. This guide-tube, H², would be connected directly to the rod, D, but for the fact that the range of motion in the rod, D, is so short as to make small speed variations hardly distinguishable. In order to remedy this, therefore, a simple rack-and-pinion gear is introduced, which cause the vertical motion of the pencil to be multiplied. For this purpose the guide, H², is fitted with a single rack, H³, and a double rack, G³, is fixed, opposite to it, on the

H3

32

J4

Fig. 17.—The Soar Speed Indicator and Recorder. View showing the more important parts of the mechanism.

inside of the tube, G². The end of the rod, D, is provided with a fork, which carries three spur-wheels, D³, D⁴, and D⁵, these three spur-wheels being fixed together. The two outer wheels are of the same size, but the wheel, D⁴, is larger. The apparatus is so made that, when the upper end of the rod, D, is in place in the interior of the tube, G², the spur-wheel, D⁴, meshes with the rack, H³, while the two wheels, D³, mesh with the double rack, G³. Any vertical motion of the rod, D, under these conditions, therefore, produces a corresponding motion of greater magnitude in the sleeve, H², and, consequently in the pencil.

The horizontal travel of the pencil is obtained, as has already been mentioned, by rotating the whole framework carrying the pencil. For this purpose the tube, G², is mounted on a turn-table, G, on the underside of which is fixed a large spur-wheel, G¹. The

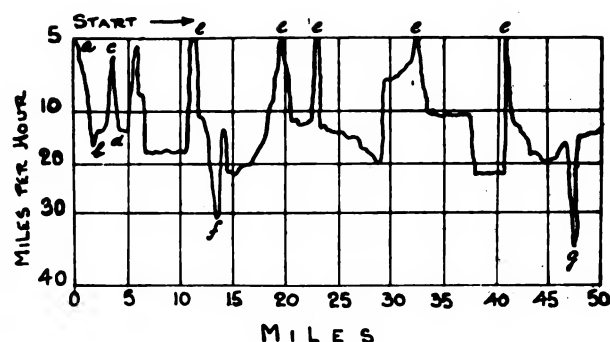


Fig. 18.—Diagram of a chart obtained from the Soar Speed Recorder. No record is made below 5 m.p.h. The above chart shows that the car attained a speed of about 18 m.p.h. (b) after it had travelled about 2 miles, it then slowed down to about 6½ m.p.h. (c) and again accelerated to about 13 m.p.h., and so on. The car slowed right down (e) five times in the run of 50 miles, and twice (f) and (g) exceeded a speed of 30 m.p.h., the highest speed (g) of about 35 m.p.h. being reached when the car had gone 48 miles.

wheel, G¹, meshes with a very small pinion, B⁵, which is carried by a bracket on the stationary plate, A³. This pinion, B⁵, is driven by a train of skew gears, B³, B⁴, and B⁵, from the worm-wheel, B², which intermeshes with the worm, B¹, on the end of the spindle, B.

The Mileage Recorder.

The top of the tube, G², is frictionally connected to the spindle of a pointer which moves over the face of the dial, A², on the cap of the case, A. This dial, A², is calibrated to show the mileage covered, and it serves as an external indication of the position of the pencil, H, and to show when a new record-paper is needed. The record is easily removed from the case, A, after lifting the cap, A², and the pressure of the pencil against the paper is also very simply adjusted by tightening a spring that is enclosed in the tube which holds the lead pencil.

The Alarm Bell.

In addition to these numerous duties, the mechanism performs one other function, viz., to ring the bell, L—mounted on the back of the case, A—when the car has attained a certain predetermined speed. This simple operation is performed by a projecting arm, fixed to the sliding-block, C⁴, which strikes the bell so soon as its height corresponds with that of a projecting portion of the bell-hammer. The bell is mounted in a slide to render it adjustable, and the screw, L¹, is provided for raising or lowering it, a scale, L², being marked on the case, A, to enable the alarm to be "set" for any desired speed.

Table of Reference Letters for the Soar Speed Indicator.

A Case.	E Spur-wheel in mesh with D ³ .
A ¹ Speed indicator dial.	F ¹ Spur-wheel driven by E.
A ² Mileage recorder dial.	F ² Speed indicator pointer.
A ³ Bracket carrying mechanism.	F ³ Pinion on spindle of F.
B Driving spindle.	G Plate carrying speed recorder gear.
B ¹ Worm on end of B.	G ¹ Large spur-wheel on G.
B ² Worm wheel driven by B ¹ .	G ² Guide for speed recorder.
B ³ , B ⁴ , B ⁵ . Skew gears.	G ³ Toothed rack fixed inside G ² .
B ⁶ Pinion driving speed recorder.	H Speed recorder pencil.
C Governor balls.	H ¹ Clip carrying H.
C ¹ , C ² , C ³ Governor springs.	H ² Tube carrying H ¹ .
C ⁴ Sliding block coupled to D ¹ .	H ³ Toothed rack fixed to H ² .
D Spindle operated by C.	K Button for releasing maximum speed indicator.
D ¹ Swivel joint on D.	L Alarm bell.
D ² Teeth on D.	L ¹ Adjustment for L.
D ³ Fork on upper end of D.	L ² Scale for setting L.
D ⁴ Large pinion carried by D ³ .	
D ⁵ Small pinion on D ³ .	

THE vagaries of fashionable society, at any rate in America, are well illustrated by a report which has found general publication in this country, that at a large ball a special cotillion was danced by the guests in motor car goggles and masks. The reports

do not state that anything else was worn, though this is doubtless an omission, but in any case the employment of motor goggles as an adornment is sufficiently ludicrous, and not calculated to make converts to automobilism.

"MERRYWEATHER" SELF-PROPELLED FIRE-ENGINES.

Two views of the 30-h.p. Petrol Fire Engine built by Messrs. Merryweather and Sons for the Sydney Metropolitan Fire Brigade.

As our readers are already aware, considerable attention has, for some time, been given by Messrs. Merryweather and Sons to the construction of self-propelled fire-engines of various kinds, and this firm have, during the past few years, supplied quite a number to those municipal bodies and others, who—like themselves—are sufficiently up-to-date to take advantage of the progress of the day. Illustrations of some of these machines, including those propelled by steam and those driven by petrol engines, have from time to time appeared in our columns, and it needs but a glance at these to show how rapid has been the development that has taken place, and how successful these celebrated engineers have been in their endeavours to render fire-engines thoroughly mobile and speedy. Nobody knows better than they how important are the first few minutes when a fire has broken out, and it is a matter of congratulation to all that they were so quick to realise that for fire-engines, even more perhaps than for any other type of vehicle, modern automobile machinery, and the high speed rendered possible by it, are indeed valuable allies.

We are now able to give two views of one of their latest 30-h.p. petrol-driven "engines," and also an illustration of a "steamer," which has recently been delivered to the Norwich Union Fire Insurance Society for use at Worcester. The former has been shipped to New South Wales for the Sydney Metropolitan Fire

Brigade, who have had a 20-h.p. "Merryweather," petrol-driven, chemical engine in use for some time; it will, we believe, be the first self-propelled fire-engine proper in Australia.

The propelling mechanism is arranged in much the same way as on an ordinary petrol car of the chain-driven type, with the four-cylinder engine beneath the bonnet, with a leather-faced cone clutch in the flywheel, and with a change-speed-gear of the sliding spur-wheel pattern giving three forward speeds and a "reverse." The fire-pump is of the three-cylinder "Hatfield" type, is made of gun-metal with rubber disc-valves and has copper air-vessels. It is fixed, as seen, at the rear, where it is driven from the gear-box through a sliding clutch—another clutch being employed for simultaneously disengaging the gear-shaft from the propelling mechanism. The pump capacity is 300 galls. per min.; a single jet can be thrown to a height of 140 feet, or four smaller jets can be used simultaneously instead.

For keeping the motor cool, when it is necessary to run it for long periods at fires, provision is made by which part of the water delivered by the fire-pump can be forced through the cylinder-jackets. Seats for the men are formed on the large hose-box, and the vehicle has extremely powerful hand and foot brakes.

The "steamer" shown in our third illustration is fitted with a special type of burner, that has been developed by

The "Merryweather" self-propelled "steamer," supplied to the Norwich Union Fire Insurance Society for use at Worcester.

Messrs. Merryweather themselves. It burns common paraffin oil, which is converted into a fine spray by a jet of steam. In this machine, also, the fire-pump (which is driven by the same engine that at other times propels the "engine") is made use of to automatically maintain the water supply, for the water tanks are fitted with ball-cocks that have the effect of always keeping them full from the delivery pipe; water can even be forced direct



The Legislation Fund of the Joint Committee of the A.C.G.B.I. and the Motor Union.—We are glad to be able to announce that the Society of Motor Manufacturers and Traders have made a generous donation of £500 to this fund, the total amount of which now stands at upwards of £1,600.

Messrs. Jarrott and Letts also have forwarded to the Joint Committee a handsome subscription of 50 guineas, in informing us of which Mr. Charles Jarrott makes the following observations, which, as they sum up the situation in regard to the Joint Committee and the absolute necessity of its being amply provided with funds in the most terse and convincing manner, we herewith append in full:—

"My company has this week forwarded to the Legislative Defence Fund formed by the Automobile Club and Motor Union a donation to assist in carrying out the object which all of us have so much at heart at the present moment, namely, the placing before the Royal Commission of a strong case for the purpose of securing fair and just regulations for motor users in connection with the new Act.

"I do not know whether other firms in the industry quite appreciate the great importance of this, but, in any event, I think it is a matter which should be forced home on every possible occasion.

"The work which has to be done is an expensive work, and a large sum of money will be necessary. The only way in which the programme can be carried out is to provide those gentlemen who are devoting all their energies to the work with the necessary funds to enable a successful issue to be obtained.

"The matter, of course, concerns the industry even more than it concerns the private user, and although I have no doubt that the fund will receive very large support from private owners of cars, nevertheless I would, as one being largely financially interested in the industry myself, like to bring home to my colleagues the necessity for supporting the Club and Motor Union Joint Committee financially to enable them to carry out this very vital work."

The Law Costs Iniquity.—The refusal of magistrates to give costs against the police or other public authorities, even when the latter are utterly and completely, according to the magistrate's own admission, in the wrong, really amounts to a serious scandal. It is one of the points on which we have repeatedly insisted legislative reform is badly needed, and will, it is to be hoped, be forcibly brought before the Royal Commission. Costs ought to follow the event without any respect of persons, for this, after all, is the only effective method of putting a limit to unjustifiable prosecutions, amounting as they often do to real persecution. These observations are suggested by the case of Mr. Macdonald, to which Mr. S. F. Edge has drawn our attention. On the 21st of last month he received a summons charging him "That he did on the 27th day of June, 1905, use on the highway—to wit, Regent Street—a locomotive then in charge of one George Candy, which did not then consume, as far as practicable, its own smoke. Whereby you have made yourself liable to the penalty prescribed by the Statute in that case made and provided." The prosecution was undertaken by the London County Council, and the defence was absolutely successful, it being maintained that the

into the boiler from the fire-pump, if desired. Another important point about these Merryweather fire-engines is that careful study has been given to the distribution of the weight upon the frame and the wheels; thus, for instance, it will be seen that the boiler lies in front of the back-axle, instead of being allowed to overhang—as on ordinary "fire-engines"—behind.



Highways Act under which the summons was taken out did not apply at all, and that the summons, if any, ought to have been taken out under another Act. In addition, it was maintained that the car was so constructed as to consume its own smoke, and that its emission was due to an accidental cause; while last, but not least, *the defendant was away at Kiel when the offence was stated to have been committed*, and was not in any way responsible. After this defence the County Council, perforce, withdrew its summons, with the magistrate's permission, as he stated that he could not possibly convict in view of the legal contentions put forward. It can hardly be believed, however, that he refused to give costs to the successful defendant, on the ground that the County Council were only doing their duty. Needless to say, this is a great hardship to Mr. Macdonald, as he had to employ expensive legal assistance to defend him, and, in addition, had to return from Wales to London at further expense and inconvenience, because the London County Council solicitors had made a mistake. When magistrates thus exercise their discretion in regard to costs it is high time, as we have contended above, that that discretion should be withdrawn.

Damage to Roads.—The Lunesdale Rural Council—we are not quite sure where Lunesdale is, and probably most of our readers do not know either—has been memorialising the surveyors of roads in Lancashire and Yorkshire to ascertain their views as to whether motor cars injure roads or not. Whether the Lunesdale Rural Council (we make no comparison with the celebrated tailors of Tooley Street) explained to the surveyors that an adverse opinion would be preferred, or whether they only wrote to those surveyors whose adverse opinions were already known, the result is that without an exception all the replies, at any rate those published, are to the effect that motor cars do a considerable amount of damage. The opinions of well-known surveyors that we have given in this Journal from time to time in the past have been quite different, and it is interesting, therefore, also to be able to quote the views of Mr. B. S. Newcombe, surveyor of Warrington, who writes as follows:—

"I have gone very deeply into the motor car question from all points of view, and I am becoming strongly of the opinion every day that they do not do anything like the damage attributed to them. There is no doubt they do raise the chippings and blindings in dry weather, but in ordinary weather they do absolutely no damage, and cause no wear. I would suggest this:—Is not a car (probably owned by someone paying big rates and big income tax) entitled to an amount of wear equal to an iron-tired vehicle? I think so, and I think that, taking the year round, they do less damage than the average omnibus or conveyance carrying the same number of passengers."

In addition Mr. Newcombe declares that any injury that motor cars do is to the surface of the road merely. They do not have any prejudicial effect on the lower layers of road metal, and it is the underlying portion of the road material that, in his view, is most destroyed by iron-shod wheels and horse traffic.

THE 40-50-H.P. RICHARD-BRASIER CAR.—PART III.

Fig. 7.—The Richard-Brasier Carburettor. Views from each side, and separate view of some of the chief parts.

The Lubricator.

AN entirely automatic system ensures the proper lubrication of the engine at all times. The lubricator, which is fixed centrally on the dashboard (Fig. 4), contains five independent pumps, which make their suction strokes under the action of springs, and are operated, as regards their delivery strokes, by small eccentrics. Adjustments are provided for each pump, and the shaft carrying the five eccentrics is driven at a slow speed by means of worm-gearing; the necessary connection with the engine is made by neatly-enclosed bevel-gearing, as seen in Figs. 5 and 6. By this means, the feed of oil to the engine is proportional to the speed, and a positive delivery is ensured to each part. The oil is led to the crank-chamber, the pistons, and the cam shafts. There are also wick-feed oil-cups formed in the crank chamber-casting above the main bearings for the crank-shaft.

The Carburettor.

In Fig. 7, the carburettor is shown from both sides, and other views are also given of certain parts detached. It is formed by two main castings, which can readily be fixed together or detached by means of the two swing bolts, H'. The lower casting constitutes the float-feed-chamber, G, and that portion (H) of the mixing-chamber which contains the two spray-jets, while the upper casting, F, forms the water-jacketted mixing-chamber proper, as well as the throttle-valve.

The petrol-pipe is attached to the carburettor above the float-feed chamber, and the petrol is previously led through a special filter that is visible in Fig. 4, while the "agitator," G¹—for "flooding" the carburettor when starting—is so arranged in conjunction with the lever, G², and an operating rod (not shown), that it can be depressed from the front of the car. The object of employing two jets instead of one is that by this means the petrol is broken up into a spray immediately it leaves the

jets, owing to the action of the two streams impinging on one another. For this reason the two jets are fixed opposite to one another, and both are set at an angle.

The main air-supply enters the base of the mixing-chamber, being led from the neighbourhood of one of the exhaust-pipes by a pipe passing across beneath the engine, and the whole of this partly-warmed air flows up around the jets. Into the mixing-chamber proper—inside the casting, F—an auxiliary air supply is drawn by the engine when the suction produced by it is sufficient, this auxiliary air entering through a spring-controlled valve in the fitting, J. The amount of air so entering varies in accordance with the speed of the engine and the load, and an approximately constant richness is maintained in consequence. Instead of allowing the auxiliary air to enter through one large passage into the mixing-chamber, a large number of small radial tubes are fitted through the wall of that chamber, and so the air is thoroughly well mixed with the already richly-carburetted air, and a homogeneous explosive charge results. The automatic valve is prevented from "hunting" or chattering by a dash-pot device, consisting of a small piston, J¹, fixed to the valve stem, and a corresponding cylinder formed inside the cover, J²; a small hole in the top of the cover, J², prevents the air that forms a cushion above the piston, J¹, from entering or escaping too rapidly.

There is nothing unusual about the throttle-valve itself, for it is merely formed by a sleeve that has a semi-rotary movement and has large ports cut in its walls to allow the mixture to pass, at any desired rate, to the induction-pipes, F³. The whole of the casting, F, is, as will be seen, provided with a water-jacket—to prevent the petrol spray from condensing or freezing in cold weather—the pipes connecting it with the circulating system being coupled up to the union fittings, F² and F³.

Conclusion.

From the foregoing description, it will have been gathered that the new 40-50-h.p. Richard-Brasier chassis is an excellent example of first-class design and up-to-date construction. Our photographs moreover will have conveyed the impression that in spite of the high power that is available, there is nothing in its



Useful Tools for Motorists.—Nothing contributes so much to alleviate the aggravation of making an adjustment or repair *en route* as the possession of tools specially designed for their work, and it is but too often the case that a motorist's tool kit contains but the meanest selection of really handy instruments. Nowadays, all the best known tool makers stock innumerable small instruments which, although not specially designed for motorists, are in many instances just the very thing a motorist requires. Foremost among such firms is the old-established house of Melhuish and Sons, whose well-known premises in Fetter Lane rank among the oldest buildings in London. Although old-established, however, there is nothing conservative in their attitude towards innovations, and while keeping thoroughly up-to-date they ensure satisfaction to their customers by a thorough system of testing which enables them to sell such tools with a full knowledge of their strength and quality.



Our illustration shows a small collection of handy tools which we have received from Messrs. Melhuish, each of which has merits peculiar to itself, and none of which are usually found in a motorist's tool kit. Although all of them are not novel in the sense of being recent inventions, our readers will doubtless be glad to have their attention directed to such instruments if they have not hitherto known of their existence.

The peculiarity of the pliers, A, is the extreme thinness of the jaws, which enables them to be used in places where an ordinary blunt-nosed tool would be useless. The screw-driver, B, speaks for itself, it is a

general appearance to denote its speed capabilities—in other words, there is absolutely nothing of the racing “freak” about it, although it so closely follows the lines of Théry's celebrated Gordon-Bennett racer. It therefore only remains to be said that the workmanship and materials are apparently all that could be desired, and are well calculated to maintain the high reputation already won by the firm.



pocket instrument, and has four different sized blades. One drawback to many instruments of this type is the weakness of the fastening between the tool and the handle, but in that illustrated it will be noticed that the steel bolt, B¹, registers into the hole, B², and amply sufficient rigidity is also obtained from the length of the tubular shaft, B³. Altogether this little tool is particularly handy for the pocket, and it is very well made, the tips of the blades being hollow-ground, which is an important point in screw-drivers.

Another screw-driver, C, is shown on the right of the illustration, and this is a recent invention of Mr. Melhuish's. It often happens that a screw is in such an awkward position that it is almost impossible to keep the screw-driver from slipping. To prevent this occurring the blade of the screw-driver illustrated is made with flanges or shrouds, C¹, which not only keep it on the screw but considerably strengthen it as well. The shape of the handle is also worthy of notice, as it indicates the really correct method of holding the instrument.

The pliers, D, are peculiar in that their jaws always keep parallel—an advantage which anyone who has attempted to hold a piece of sheet metal with an ordinary pair of pliers will readily appreciate.

A VERY racy article is contributed to the *Badminton Magazine* by Major C. G. Matson. The article is an appeal to the inconsiderate motorist to recognise the dictates of common-sense as well as those of good nature and common courtesy to other users of the road, and it comes therefore at a very appropriate moment in the development of the motor car movement. The whole of Major Matson's article is entertaining, but as an example of its quality we confine ourselves to the two following passages, which are characteristic both of his attitude and his style:—

“The man who owns a vehicle capable of going as fast as a railway train will more than probably be tempted at times to drive it at its full speed, or if not his chauffeur will, to the general discomfort of the public. *Why go ‘scorching’ along the roads?* To say nothing of the danger, the blinding clouds of dust raised are in proportion to the speed attained, and a car running at forty miles an hour on a calm day will leave a trail of dust quite a mile long in its wake to ruin the clothes, property, and temper of everyone within reach. *Why be such a selfish wretch? Go slow.* Proceed at half the speed, except in absolutely deserted country. At fifteen miles an hour but little dust is raised, and in passing pedestrians, horse traffic, and cyclists, any decently-minded driver should slow down so as to inconvenience them as little as possible. It is difficult to get these notions into the head of the professional driver. His idea of horse-power is to use it at all hazards, to ‘show off’ generally as much as possible.”

“Another of the unwritten laws is that at elections one's motor car is to be at the disposal of one of the candidates as a matter of course. Well, all I can say is that no prospective legislator sees me burn any petrol on his behalf unless he is sound on the Motor Question, and with me ‘soundness’ means ‘the high road for everybody, and not only for Herr von Hoggeneimer and his congeners.’ I think it is a mistake to have any speed limit. Because it is lawful *sometimes* to drive at twenty miles, it has almost become an unwritten law to drive at that rate (or a little over it) whenever possible.”

THE TOURIST TROPHY RACE.

Photo by G. C. Cowen, Ramsey.

TOURIST TROPHY RACE IN THE ISLE OF MAN.—The course near Douglas. Taken from Kepple Gate.

The official headquarters are at the Peveril Hotel, Douglas.

Entered cars must be in the Isle of Man at 10 a.m. on Monday, September 11th, for examination and weighing up. After entering the official enclosure the cars will remain under the sole control of the club till the start of the race, and they will not be available for timing up, adjustment, or any other purpose until the morning of the race, and then only under supervision.

NOTES FOR THE PUBLIC.

Cars will start at 9 a.m., at intervals of two minutes, from Quarter Bridge, on Thursday, September 14th.

Four complete circuits of the course (52 miles 1 furlong) will be made, this being a total distance of 208 miles 4 furlongs.

There will be no controls.

All cars must carry the same "load" (including the body), irrespective of horsepower or size.

The car covering the full course in the shortest time is the winner.

Each car will be allowed a limited and identical supply of petrol, sufficient, in the opinion of the judges, to cover the full course at a reasonable speed. If the course were over the Oxford road, each would

have one gallon for every 25 miles. In the Isle of Man they will have what the A.C.G.B.I. officials consider to be an equivalent quantity, after taking into consideration the actual state of the roads at the time and the hilly nature of the course.

How this fuel limitation will affect the driving of the cars and call out the best and most skilful manipulation to win the race we explain elsewhere.

If all the cars not hitherto withdrawn actually start there will be 47 competitors, the last car would in that case leave Quarter Bridge on its first round at 10.34 a.m.

TOURIST TROPHY RACE.—The 14-h.p. Wolseley Car, which is of the same type as all those which have established for themselves a world-wide reputation.

THE TOURIST TROPHY RACE 1905—PARTICULARS OF ENTRIES.

Official No.	Car and Entrant.	Engine.			Type.	Effective Piston Displacement (1,000 cu. ins.), +				Carburettor.		Transmission.		Chassis.			Tyres.	Price.							
		Cyls.	Bore.	Stroke.		Speed.	Control.	Ignition.	Per 1,000 Revs.	Per Min.	Per Mile on each gear.		Control.	Type.	Clutch.	Speeds.		Direct.	Wheel Track.	Base.	Make.	Size.	Chassis.	Car.	
											1st.	2nd.													3rd.	4th.	1st.	2nd.	3rd.	4th.
1 st P.	120 Rolls-Royce (C. S. Rolls)	V	4	100	127	1000	G, T	B	122	122	488	298	198	161	A	gr	fl	4	3rd	15	24 1/2	37	45 1/2	810 x 90	£ 600
2	18 Napier (S. F. Edge)	V	4	3 1/2	4	1200	G, T	B	77	92	690	320	217	160	D	gr	fl	4	—	8	17 1/2	25 1/2	34 1/2	32 x 3 1/2	£ 800
3	18 Napier (Cecil Edge)	V	4	3 1/2	4	1200	G, T	B	77	92	690	320	217	160	D	gr	fl	4	—	8	17 1/2	25 1/2	34 1/2	32 x 3 1/2	£ 800
4	17 Daimler (Percy Martin)	V	4	80	100	1250	G, T	B	61 1/2	77	—	—	—	—	D	gr	ga	4	3rd	15	24 1/2	37	45 1/2	810 x 90	£ 450
5	17 Daimler (E. M. C. Instone)	V	4	85	110	1200	G, T	B	76	91 1/2	—	—	—	—	D	gr	ga	4	3rd	15	24 1/2	37	45 1/2	810 x 90	£ 450
6	14 Speedwell (J. W. H. Dew)	V	4	85	110	1200	G, T	B	89	98	435	280	155	—	A, D	gr	ga	4	3rd	13 1/2	21	38	—	810 x 90	£ 450
7	15 Orleans (W. H. Astell)	V	4	92	110	1100	G	B	89	98	435	280	155	—	A, D	gr	ga	4	3rd	13 1/2	21	38	—	810 x 90	£ 500
8	15 Orleans (W. H. Astell)	V	4	92	110	1100	G	B	89	98	435	280	155	—	A, D	gr	ga	4	3rd	13 1/2	21	38	—	810 x 90	£ 500
9	15 Orleans (W. H. Astell)	V	4	92	110	1100	G	B	89	98	435	280	155	—	A, D	gr	ga	4	3rd	13 1/2	21	38	—	810 x 90	£ 500
10	14 Wolseley (R. K. Brown)	V	2	4 1/2	5	800	G, T	B	79	63	388	222	151	111	A	gr	—	4	—	9 1/2	17	25	34	32 x 90	£ 363
11	18 Siddeley (J. D. Siddeley)	V	4	4	4	1000	G, L	B	100	100	545	315	214	162	A, D	gr	—	4	—	11	19	28	37	32 x 90	£ 650
12	14 Thornycroft (T. Thornycroft)	V	4	3 1/2	3 1/2	900	G, T	M	82 1/2	74	595	228	140	—	A	gr	fl	4	3rd	7 1/2	19 1/2	31 1/2	—	810 x 90	£ 425
13	20 Simms-Welbeck (F. R. Simms)	V	4	95	110	1000	G, T	M	95	95	380	190	127	—	A, D	gr	fl	4	3rd	15	30	45	—	810 x 90	£ 435
14	15 Star (E. Lisle)	V	4	4	5	1000	G, T	B	125	125	935	410	234	188	A	gr	—	4	—	8	17	32	40	870 x 90	£ 450
15	14 Argyll (A. Govan)	V	4	8 1/2	110	1100	G, T	B	74 1/2	82	266	183	149	—	A, D	gr	fl	4	3rd	18 1/2	27	33	—	810 x 90	£ 415
16	14 Argyll (A. Govan)	V	4	8 1/2	110	1100	G, T	B	74 1/2	82	266	183	149	—	A, D	gr	fl	4	3rd	18 1/2	27	33	—	810 x 90	£ 415
17	14 J. and B. (T. B. Browne)	H	4	3 1/2	4 1/2	800	G, T	B	86 1/2	69	—	—	—	—	A	gr	—	4	—	8	23 1/2	—	—	810 x 90	£ 475
18	9 Cadillac (F. S. Bennett)	H	1	5	5	900	T, L	B	49	44	330	112	—	—	F	gr	fl	4	2nd	8	23 1/2	—	—	810 x 90	£ 210
19	20 Maudslayi (C. C. Maudslayi)	V	4	4 1/2	3 1/2	900	G, T	B	110	99	495	308	216	163	A	gr	—	4	4th	12	19 1/2	27 1/2	36 1/2	815 x 105	£ 250
20	20 Rolls-Royce (Hon. C. S. Rolls)	V	4	95	127	1000	G, T	B	110	110	440	269	178	145	A	gr	fl	4	3rd	15	24 1/2	37	45 1/2	810 x 90	£ 600
21	12 Vauxhall (F. W. Hodges)	V	3	3 1/2	4 1/2	950	G, L	B, m	74	70	577	424	256	193 1/2	A, D	gr	ga	4	3rd	7 1/2	10	15 1/2	21 1/2	810 x 90	£ 340
22	16 Hummer (T. C. Pullinger)	V	4	95	125	900	G, L	B	96 1/2	106	795	398	245	177	D	gr	ga	4	4th	8	16	26	36	870 x 90	£ 450
23	16 Swift (E. de Wilton)	V	4	88	130	1100	G	B	96 1/2	106	795	398	245	177	D	gr	ga	4	4th	8	16	26	36	870 x 90	£ 450
24	15 Ryknieid (A. J. Clay, M.A.)	V	3	4	4 1/2	1000	T, L	m	84 1/2	94 1/2	507	226	157	—	A, D	gr	fl	4	3rd	10	25	36	—	34 x 4	£ 550
25	15 White (Frederic Coleman)	V	2	3 1/2	3 1/2	675	T	m	—	—	—	—	—	—	A	gr	—	2nd	—	—	—	—	—	34 x 4	£ 550
26	15 White (Frederic Coleman)	V	2	3 1/2	3 1/2	675	T	m	—	—	—	—	—	—	A	gr	—	2nd	—	—	—	—	—	34 x 4	£ 550
27	15 White (Frederic Coleman)	V	2	3 1/2	3 1/2	675	T	m	—	—	—	—	—	—	A	gr	—	2nd	—	—	—	—	—	34 x 4	£ 550
28	15 White (Frederic Coleman)	V	2	3 1/2	3 1/2	675	T	m	—	—	—	—	—	—	A	gr	—	2nd	—	—	—	—	—	34 x 4	£ 550
29	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
30	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
31	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
32	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
33	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
34	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
35	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
36	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
37	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
38	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
39	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
40	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
41	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
42	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
43	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
44	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
45	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
46	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
47	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
48	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
49	16-Hummer (T. C. Pullinger)	V	4	95	125	900	L, L	B, m	100	100	1500	600	300	190	D	gr	fl	4	3rd	8	15	30	—	815 x 105	£ 450
50	1																								

Extremely wide is the range of cars entered, but every necessary factor for enabling spectators to make an intelligent comparison between the cars is included in our table, which is published elsewhere in this issue.

The most costly car is the Napier, the lowest-priced is the Cadillac; both are in the first rank of their respective types, and the mere fact that both are competing in the same event, with the same "load" and the same quantity of fuel, is sufficient proof of how wide is the circle of motorists to which the T.T. should appeal.

Many of the cars entered are ordinary standard models; some makers intend to adopt their T.T. car as a new standard type, and such cars will doubtless figure largely at the next exhibitions—which is another reason why motorists should interest themselves in the event.

EXPLANATION OF TABLE.

Engine.—Type: V = Vertical; H = Horizontal.

Cyls.: c = Compound; da = double acting.

Control: G = Automatic Governor; T = Independent hand throttle; L = Variable left inlet valves.

Ignition: B = Battery; M = Low-tension magneto; m = high-tension magneto.

Carburettor.—Control: A = Automatic regulation for richness of mixture; D = Richness regulated by driver; F = Fixed, i.e., no compensation for richness.

Feed: pr = Pressure; gr = Gravity.

Gauge: ga = Gauge; fl = Float.

Transmission.—Type: cc = Side-Chains; c = Single Chain; la = Live Axle.

Clutch: co = Cone; mc = Metal Cone; di = Disc.

"Direct" drive on which speed.

Tyres.—Make: Du = Dunlop, Mi = Michelin, Pa = Palmer, Ct = Continental.

* At normal engine speed.

‡ Vauxhall car 35½ m.p.h. at 1 speed. The values for piston per mile are 16c respectively.

† Suction strokes only are calculated in this column, so that on the basis established from the results of the Small Car Trials (AUTOMOTOR JOURNAL, September 17th, 1904, page 1106) the present *effective* piston displacement of 5,000 cubic inches per minute is approximately equivalent to 1-h.p.

Where spaces in the above table are unoccupied, it signifies that the information is not available. Where dashes are employed, it indicates that the question does not apply.

THE special article which we devoted to this subject in July last was more particularly intended to lay

TOURIST TROPHY RACE.—Side view of the 18-h.p. Napier chassis. Atmospheric inlet-valves of the Napier "multiple" type will be employed during the race instead of the mechanically-operated, annular valves fitted to the 4-cylinder engine of the standard chassis; the general design permits either to be used as desired.

before our readers the principles upon which this novel type of contest—the Tourist Trophy race—had been based, and to bring before their notice the difficulties that are necessarily experienced when attempting to institute any really satisfactory competitive event for *touring* cars. With this object in view, we analysed the general question in some detail, and not only tried to show how far it was possible, on the lines adopted by the A.C.G.B.I., to put a premium on all the most desirable characteristics of such vehicles, but we also considered various alternative methods that had been suggested, in the hope of attaining the same end. Our conclusions were (1) that the adoption of "fuel consumption per mile" for limiting engine power was the best basis; (2) that this method of classification had quite the desired effect—when taken in conjunction with a specified weight for the car—of restricting car speed; (3) that it—unlike any of the other alternatives—tended to ensure touring conditions being adhered to by the drivers; but (4) that certain modifications might to advantage be made in the present T.T. rules after the race had taken place this year.

TOURIST TROPHY RACE.—View from above of the Napier chassis, showing the three-point-suspension, 4-speed gear-box which "floats" on the differential countershaft. The conical steering-wheel is a distinctive external feature of the two Napier cars.

TOURIST TROPHY RACE.—Side view of the Thornycroft chassis. The engine is an entirely new model, having all the valves arranged on the top of the cylinders where they are extremely accessible, and the cam-shaft, which is on a level with the cylinder heads, is driven by bevel-gearing from a vertical shaft.

We gave our reasons for believing that a good working basis had been arrived at for holding a rational type of automobile contest, which would not only have all the attractive features of an ordinary race, but would cease to be the mere "speed-contest" between racing machines that all such competitions have necessarily resolved themselves into in the past. And we also showed that such a contest would further gain an immense advantage by possessing the true sporting interest resulting from the subservience of sheer mechanical power to the highest form of skilful driving and to all the best features of touring car design. As strong reasons for advocating the underlying principles of the Tourist Trophy race, we, in fact, urged the interesting nature of such events from

TOURIST TROPHY RACE.—Another side view of the Thornycroft chassis which, except for the new 4-cyl., 14-h.p. engine, follows the lines of their well-known standard 20-h.p. model.

a spectacular point of view, the real value they should have in guiding the buying public, and the benefits that would accrue to the industry at large by the tendency towards standardisation of types that would result.

Even at the time, however, we could not but realise that the chief difficulty in the way of convincing motorists of the merits of the new system lay in the absence of such practical data as was needed for showing by actual figures the extent to which the desired results would be obtained, and

it was also anticipated, as has since proved to be the case, that the very valuable communications which have since then appeared, week by week, in our columns, would be similarly restricted in their scope to a purely abstract consideration of this very important subject. We, therefore, commenced making a number of trials with some of the best known cars on the market, and have also obtained some very interesting figures from bench tests with typical petrol engines. It is with great pleasure that we now publish the

TOURIST TROPHY RACE.—View from above of the Wolseley chassis, showing the well-known, but unique, arrangement of engine and gear-box, which lie parallel to one another across the frame and are connected by a Renold's "silent" chain.

bring out prominently the great need that there is for certain modifications to be made, for future occasions, in the existing rules.

Our Practical Tests— Results.

The main object with which these private tests have been conducted was to ascertain, in a general kind of way, the extent to which the fuel consumption is affected by car-speed, by engine-speed, and by different methods of control on

TOURIST TROPHY RACE.—The Whitlock-Aster Car, which is of the live-axle type and has a gear-box giving three forward speeds and a reverse.

more important results. Although they have extended over a considerable period, and have naturally involved a great deal of careful study, we do not for a moment pretend that they more than touch upon the fringe of what is unquestionably a very vast and complex subject, but we, nevertheless, believe that they will at least show how much more importance is automatically attached to careful driving than to mere recklessness, how completely anything of the nature of a racing car is excluded from the con-

TOURIST TROPHY RACE.—Side view of the Whitlock-Aster chassis, which has a 12-h.p., four-cylinder Aster engine fitted with mechanically-operated inlet valves.

test, how great a premium is placed on efficiency of transmission, and how sound is the system of classification for a definite type of car. Our figures also

an ordinary touring car. Two things were, therefore, necessary in order to arrive at the required results, the one being a series of fuel-consumption tests with various cars on the road, and the other being bench tests with typical petrol engines in the shops. Obviously the road tests alone would extend over an extremely long period if any attempt were made to take into account all and every running condition, and even apart from the time taken in actually driving the cars and securing the records, it would be an enormous task to classify such a mass of figures and reduce them down into tabular form. To bring the work down within a practicable compass it was consequently decided to select two entirely different trial routes, and to drive each car over the same ground as many times, and

TOURIST TROPHY RACE.—The Maudslay Car, which is peculiar for having its cylinders constructed with a bore of greater diameter than the length of the stroke. It has side chains and four "speeds."

engines, but they also serve to explain the reason for many otherwise paradoxical results obtained in the road tests. The actual results of all our tests are given in a condensed form, in order to save our readers the arduous task of wading through an unmanageable mass of figures. Those referring to the road tests will be found in Table I, and those referring to the engine tests will be represented by curves in Figs. that will be numbered 1 to 8.

In connection with these tests our best thanks are due—amongst others—to Mr. J. D. Siddeley and the Wolseley Company, to Mr. S. F. Edge and the Napier firm, to Mr.

TOURIST TROPHY RACE.—One of the Swift Cars, which will be driven in the competition by Messrs. Harvey du Cros, jun. and E. de Wilton respectively. They are fitted with the well-known 4-cylinder White and Poppe engines, have four-speed gear-boxes and live axles.

at as many different speeds, as was found desirable. One of the routes was practically level and straight, the other was not only hilly, but was far from straight—having indeed numerous sharp corners, and both routes enabled the car to be brought to rest at precisely the same spot that it started, so that an accurate measurement could be made of the fuel consumed.

Our engine tests will not only be found of great value in themselves, as showing the main characteristics of modern high-speed and low-speed petrol

TOURIST TROPHY RACE.—Side view of the 20-h.p. Rolls-Royce chassis. This car, which is one of the most powerful of those entered, is virtually their standard model, but one of the two cars has a somewhat smaller engine than the other.

J. W. Stocks and the De Dion Company, to Mr. F. S. Bennett and the Cadillac firm, and to Mr. Mawdsley Brooke, of Lowestoft, for the very valuable assistance which they have afforded us. We are also indebted to Messrs. S. Smith and Sons, for their invaluable speed indicators, and to Messrs. Markt and Co. for their very effective "Veeder" tachometer.

The Road Trials.

The level course selected was slightly over ten miles in length, with a first-rate road surface, and was on most days dry. Consisting as it did of a run out and home again over the same ground, the effect

TOURIST TROPHY RACE.—View from above of the 20-h.p. Rolls-Royce chassis. A direct drive to the live-rear-axle is obtained on the third instead of the fourth gear, which latter affords a higher ratio than the corresponding top-speed of any other car in the race.

TOURIST TROPHY RACE.—One of the Minerva Cars, entered by Messrs. C. S. Rolls and Co. These vehicles are of the chain-driven type, and a direct drive to the differential countershaft is provided on the third gear although, in all, four changes of speed are provided.

of winds of varying strength on different occasions was to a great extent neutralised, but, incidentally, an excellent opportunity was afforded of seeing how greatly the speed capabilities of a car are affected by any strong head wind. The hilly course consisted of a more or less steady rise for a distance of four miles, a twisting and undulating road for another mile, a very steep descent of half a mile (during which the engine was allowed to

stand at rest), and a more or less level return to the starting point. The actual distance traversed with the engine running was eight miles, and the road surface was fair throughout. At no part was the up gradient very severe, and therefore most of the cars could traverse the entire course on the top gear, the chief advantage of the course therefore being that it enabled a nearly full load to be maintained on the engine for some time. On the level course used, full load was naturally only approached, even on the highest gear when travelling very fast, and, for the same reason, on the hilly course as well, no really useful tests could be made with any of the lowest gears.

The usual routine pursued with each car was to drive over both courses at different speeds, or, in some cases, at the same speed but using a different gear. As constant a speed as possible usually maintained, but on a few trips the speed was purposely allowed to fluctuate considerably. In this manner, we were able to obtain a widely significant range of results from which a far greater number of

TOURIST TROPHY RACE.—Side view of the Dixi chassis. The main frame is constructed of pressed steel and does not, in this respect, resemble the smaller models which are remarkable for their special tubular construction.

useful deductions can easily be made, than those which are permitted by the space at our disposal in this article. These are, therefore, available for those of our readers who have the time to study them more deeply, but we only propose in this article to draw attention to those points which are of more general interest in view of this year's race. In the table (Table I), the speed in miles per hour is given in the first column, the "gear"

TOURIST TROPHY RACE.—View from above of the Dixi chassis, showing the four-cylinder engine and the arrangement of the three-speed gear-box.

TABLE I.—Results of Fuel Consumption Tests with Standard Cars.

Av. Speed m.p.h.	Gear Used.	Petrol Consumed.			Engine Revolutions.		Cubic ins. of Petrol.	
		Pints.	Miles per Gall.	Galls. per Hour.	Av. per Min.	Total No.	Per 10,000 Explosions.	Per to million cu. in. useful piston displacement.
14-h.p. Wolseley.—Level Course.								
14.9	2nd	4.0	20.4	.732	830	34,000	41	518
14.6	4th	2.5	32.6	.448	400	16,800	52	657
23.2	3rd	3.75	21.8	1.062	878	23,300	56	708
22.7	4th	3.5	23.3	.942	628	16,800	72	910
23.5	4th A	3.25	25.25	.947	650	16,800	67	845
Hilly Course.								
10.9	3rd (2nd and 1st)	4.0	16.0	.683	410	18,380	75	946
11.43	2nd	3.0	21.3	.535	637	26,750	39	492
19.2	3rd (2nd)	3.25	19.5	.984	725	18,125	63	795
20.85	4th (3rd and 2nd)	2.75	23.2	.898	590	13,600	70	882
24.6	4th (3rd)	3.25	19.7	1.235	690	13,455	83	1045
6-h.p. Wolseley.—Level Course.								
15.3	3rd	2.0	40.8	.375	605	24,200	57	719
19.5	3rd	2.0	40.8	.475	770	24,200	57	719
23.5	3rd	2.5	32.5	.722	930	24,200	72	910
24.0	3rd	2.5	32.5	.735	950	24,200	72	910
Hilly Course.								
15.5	3rd (2nd)	2.1	30.4	.508	625	19,400	75	946
16.25	2nd	2.3	27.8	.586	980	28,900	55	693
20.0	3rd (2nd)	2.0	32.0	.623	820	19,600	71	896
15-h.p. Napier.—Level Course.								
20.15	4th B	3.75	21.8	.925	700	22,540	30	775
23.75	4th C	3.0	27.2	.872	778	21,150	25	640
29.75	4th	3.25	25.1	1.182	975	21,150	27	691
Hilly Course.								
17.1	3rd D	2.75	22.3	.734	755	22,600	21	550
20.0	3rd E	3.0	21.4	.937	882	22,000	23	598
21.8	4th (3rd and 2nd)	2.5	25.5	.852	770	18,067	25	654
15-h.p. De Dion.—Level Course.								
10.35	3rd F	4.5	18.1	.572	496	29,300	27	685
26.1	3rd	3.5	23.35	1.115	1245	29,300	21	532
Hilly Course.								
18.05	2nd D	4.0	16.0	1.132	1300	34,400	20	520
19.0	2nd F	4.0	16.0	1.188	1365	34,400	20	520
19.4	3rd	3.0	21.3	.91	928	23,000	23	583
24.3	3rd	3.0	21.3	1.2	1162	23,000	23	583
6-h.p. De Dion.—Level Course.								
14.2	3rd	1.75	46.6	.308	990	42,600	28	667
17.0	3rd	2.125	38.3	.443	1185	42,600	35	810
21.9	3rd	2.125	38.3	.57	1520	42,600	35	810
25.0	3rd	1.75	46.6	.534	1750	42,600	28	667
Hilly Course.								
13.7	2nd G	2.25	28.4	.482	1275	44,775	35	818
13.9	3rd (2nd)	2.0	32.0	.435	987	34,000	41	953
Cadillac I.—Level Course.								
10.75	High	2.5	32.6	.3285	491	28,150	62	627
19.75	High	2.5	32.6	.605	903	28,150	62	627
26.6	High	3.25	25.1	1.06	1220	28,150	80	815
Cadillac II.—Level Course.								
13.05	High	2.0	40.8	.319	498	23,400	59	602
20.4	High	2.0	40.8	.5	780	23,400	59	602
25.6	High	2.5	32.7	.782	973	23,400	74	755
Hilly Course.								
18.6	3rd (2nd)	2.0	34.8	.537	723	20,255	68	698

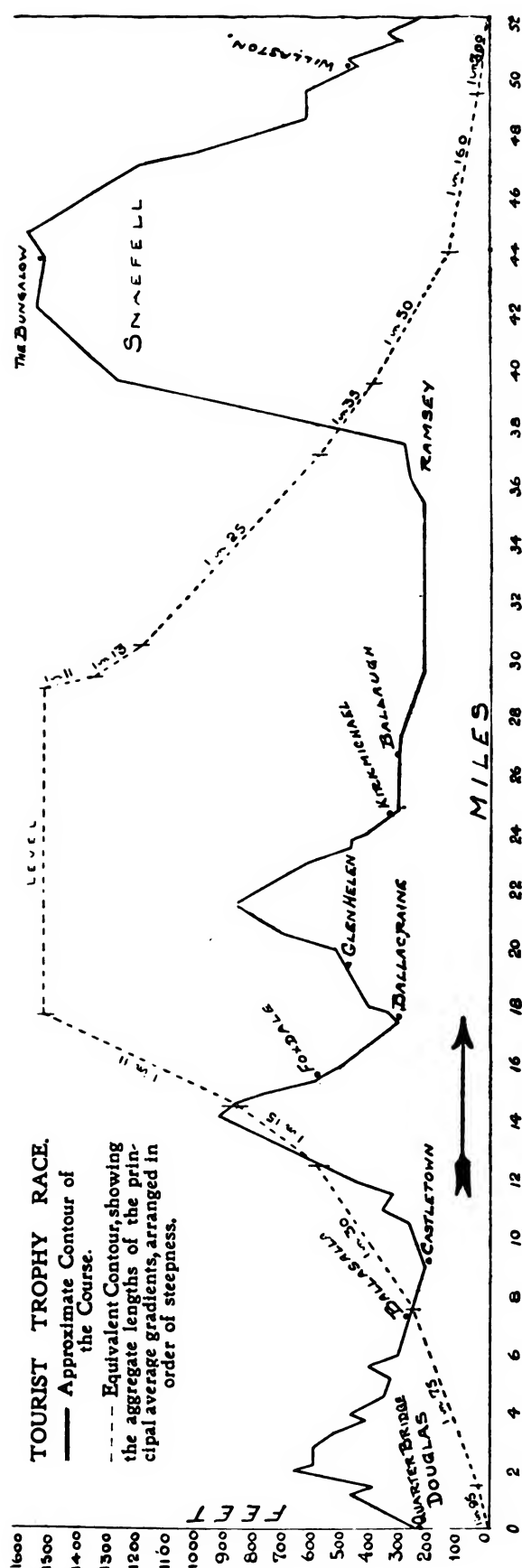
TABLE I.—(continued).

A. Speed fluctuated considerably (up to 30 m.p.h.—850 r.p.m.—at times).
 B. Speed kept down by operating clutch (governor cutting out at equivalent to 24 m.p.h.).
 C. Speed controlled by governor only (clutch not withdrawn).
 D. Speed controlled by hand throttle (compensating) only.
 E. Speed controlled by clutch and governor only.
 F. Speed controlled by exhaust-valve device.
 G. Third gear used for level portion of course.
 14-h.p. Wolseley (8.7, 15.3, 22.5 and 30.8 m.p.h. at 850 r.p.m. Bore 4½ in., stroke 5 in.). 2 cyl. (79.5 cu. in. each).
 6-h.p. Wolseley (7½, 13½, and 20½ m.p.h. at 800 r.p.m. Bore 4½ in., stroke 5 in.). 1 cyl. (79.5 cu. in.).
 15-h.p. Napier (18½, 17½, 25½, and 34½ m.p.h. at 1,200 r.p.m. Bore 3½ in., stroke 4 in.). 4 cyl. (38.48 cu. in. each).
 15-h.p. De Dion (10, 19½, and 29½ m.p.h. at 1,400 r.p.m. Bore 90, stroke 100 mm.). 4 cyl. (38.79 cu. in. each).
 6-h.p. De Dion (6, 15, and 23 m.p.h. at 1,600 r.p.m. Bore 90 mm., stroke 110 mm.). 1 cyl. (42.669 cu. in.).
 Cadillac I. (19½ and 6½ at 900 r.p.m. Bore 5 in., stroke 5 in.). 1 cyl. (98.2 cu. in.).
 Cadillac II. (23½, 15½, and 7½ at 900 r.p.m. Bore 5 in., stroke 5 in.). 1 cyl. (98.2 cu. in.).

in use is specified in the second column, the fuel consumption—actual, in miles per gallon, and in gallons per hour—follows in the next columns, and then figures are given concerning the engine revolutions, and the relationship of fuel consumption to the cylinder capacity. Practically, it may be said that the fifth and the last columns chiefly enable comparisons to be made between car and car, while the other columns contain comparative figures relating to the various performances of the individual car.

It should perhaps be pointed out most clearly, that the special types of car selected for these trials were chosen with a view of getting figures from those differing radically from one another in design, and that it is only a coincidence that two or three of them are more or less similar to cars taking part in this year's race. Another important matter to which it is but fair that attention should be drawn, is that the weights carried, and the kind of bodies fitted, varied very greatly, and that our figures must not therefore be in any way taken as a fair comparison of the relative merits of the respective types of car. As will be noticed single-cylinder, twin-cylinder, and four-cylinder engines are represented, some slow-speed, some high-speed, some of the vertical type and some having horizontal cylinders.

TOURIST TROPHY RACE.—Miss Dorothy Levitt on the Mors car which she will drive in the competition. The chassis is the standard 4-cyl., 12-h.p., 4-speed, 1903 type.



In order to enable our readers to apply the results of our tests to the Tourist Trophy Race this year, and to give a good general basis on which any such questions may be considered, we give in Table II an analysis of the contour of the course in the Isle of Man, showing the average gradients and the lengths of the various uphill, level and downhill stretches. From this table it will be seen that each circuit, run in the direction fixed for the event, comprises nearly eighteen miles of climbing, over eleven miles of level, and over twenty-three miles of downhill. Summarised in Table III is an abridged analysis of a similar nature, in which all the average gradients included in Table II that approximate to one another have been grouped, with the distances added together, and the figures thus

TABLE II.—Gradient Analysis of Tourist Trophy Course in the Isle of Man.

Up Gradients in Sequence.				Down Gradients in Sequence.			
Distances.		Rise in Feet.	Gradient one in	Distances.		Rise in Feet.	Gradient one in
Miles.	Feet.			Miles.	Feet.		
1.1875	6,270	211	29.6	.375	1,980	54	36.6
.75	3,960	263	15.1	.25	1,320	60	22.0
.0833	440	39	11.25	.3333	1,760	72	24.5
.1875	990	49	20.0	.25	1,320	114	11.5
1.4166	7,480	71	10.5	.5833	3,080	86	36.8
.5	2,640	83	31.7	.75	3,960	15	265.0
.3125	1,650	99	16.7	.9375	4,950	103	48.0
2.5	13,200	465	28.3	2.8333	14,960	84	177.5
.25	1,320	21	63.0	.4375	2,310	18	128.0
.1875	990	55	18.0	.4375	2,310	47	49.0
1.8125	9,570	128	75.0	.4375	2,310	99	23.3
.5	2,640	196	13.5	.4166	2,200	162	13.6
.75	3,960	45	88.0	.5833	3,080	114	27.0
.6666	3,520	34	103.5	1.4166	7,480	168	44.5
1.1875	6,270	77	81.0	1.625	8,580	155	55.0
1.9375	10,230	985	10.6	.375	1,980	143	13.8
2.3333	12,320	290	77.0	.25	1,320	57	23.1
.6875	3,630	50	72.5	.75	3,960	109	36.3
.3125	1,650	45	34.5	2.25	11,880	74	160.0
.25	1,320	31	42.5	.375	1,980	54	36.6
17.8125	94,050	3,237	—	1.75	9,240	28	330.0
<i>Level Stretches in Sequence.</i>				2.25	11,880	396	30.0
Miles.	Feet.			.3125	1,650	145	11.4
.75	3,960			1.3125	6,930	406	17.1
.5	2,640			.6875	3,630	197	18.4
2.75	14,520			.5833	3,080	91	33.8
6.125	32,340			.25	1,320	105	12.6
1.0	5,280			.375	1,980	81	24.5
11.125	58,740			23.1875	122,430	3,237	—

TABLE III.—Summary of Approximated Average Gradients.

Distance in Feet.				Gradient.
Up Grades	...	...	7,480	1 in 95
			33,110	1 in 75
			25,080	1 in 30
			10,670	1 in 15
Level	...	...	17,710	1 in 10.55
			58,740	—
			13,200	1 in 300
			29,150	1 in 160
Down Grades	...	...	23,320	1 in 50
			14,080	1 in 35
			34,210	1 in 25
			5,500	1 in 13.2
			2,970	1 in 11.45
Grand Total	...	...	275,200	= 52.125 miles.

"Castle" Accessories in the Isle of Man.—United Motor Industries, Limited, inform us that during the Tourist Trials, Mr. White, motor agent, Prospect Hill, Douglas, will hold a large stock of "Castle" accessories, including the "Castle" accumulators, sparking plugs, induction coils, lamps, "D" lubricating oil, "Castle-Monogram" oil, &c., &c., which will doubtless be convenient to the competitors and visitors.

* * *

A New Road Material.—The long roll of enthusiasts who claim to have manufactured diamonds from cheap materials has received a new accession in an Ashford experimenter (a carpenter by trade), who maintains that he has successfully made diamonds as big as walnuts from ordinary sugar and a benzine blow-lamp. It sounds simple and attractive, and it is therefore satisfactory to learn that the new diamond manufacturer proposes to devote a portion of the enormous wealth which he anticipates

amassing (by the manufacture of diamonds) not only to uplifting the down-trodden, but also to building new and great roads leading out of London, which will mean work for thousands of the unemployed. More power to the Ashford diamond maker! Let us hope that his diamonds will be as big and plentiful as his aspirations, and then perhaps, we may see the roads leading out of London metalled with them instead of granite and flint, a variety of tarmac, in which diamonds replace blast furnace slag, being introduced.

TOURIST TROPHY RACE.—Mr. F. S. Bennett on the Cadillac Car, which is the least powerful of all those entered. It is also the only single-cylinder car competing and it is the only car having a "fool-proof" two-speed gear. No modification to the standard chassis has been made other than the necessary lengthening of the wheel base to comply with the regulations. For this purpose leaf springs have been employed, and an exceptionally smooth running car is the result.

obtained are arranged in order of steepness. The figures contained in Table III are also represented graphically in Fig. 9 by the dotted line, the full line in this figure giving an approximate contour of the course.

(To be continued.)

[Next week we shall publish full details, with comments, of each individual series of tests.]

DURING the Tourist Trophy week, the Michelin Tyre Company, Limited, have arranged to keep a stock of their tyres and accessories at the Athol Hotel, Douglas.

TOURIST TROPHY RACE.—View from above of the Ryknield chassis, showing the three-cylinder engine which has variable left inlet valves. Ball bearings are employed throughout the transmission, but in other respects the chassis is a standard type, with three "speeds" and live axle.

RACES, RECORDS, AND TRIALS.

The officials at the finishing point. Note the Coast-guard'sman (on the top of the bathing machine) who signalled to the starting point.

Mr. Cecil Edge coming down the course at top speed on his 90-h.p. Napier racer.

SKEGNESS SAND RACES.

Skegness Sand Races.—The race meeting arranged by the Notts A. C., was duly brought off at Skegness on Saturday afternoon in fine weather. It could not be said that the track was good, the heavy rain overnight having rendered the sands infirm, and cars which were left standing for a minute were often in difficulties. Drivers consequently preferred to race on the shingle. The course was a mile long, but the actual racing times were not given out. In the tourist events the races were run in heats of three, the winners competing in the subsequent rounds. There was a great crowd on the north parade at 11 o'clock, when the various cars entered for an appearance competition, filed up. There were ten entries and eight exhibits. The gold medal was awarded by Mr. S. C. Coetmore Jones (who judged this event) to Mr. B. W. Winter's 20-30-h.p. Renault, while the silver medal went to Dr. Thompson's 18-h.p. Dennis. The first event on the racing programme was a mile scratch race for motor cycles not exceeding 5-h.p. Four competitors went to the scratch, and the result was as follows:—

1. F. G. Smith, 5-h.p. Clyde (gold medal).
2. H. P. Mays, 3½-h.p. Vinco-Minerva (silver medal).
3. Leslie Pogson, 3½-h.p. Holland.
4. Noel Martin, 3½-h.p. Horn and Co.

The following was the result of the running in the car events:—

One Mile Handicap (limited to cars owned by members of the Notts, Leicestershire, and Derby and District Clubs)—

1. (Gold medal) H. Bircumshaw's 10-h.p. Argyll (rec. 70 secs.).
2. (Silver medal) A. F. Houfton's 16-20-h.p. Humber (rec. 30 secs.).

3. J. Martin's 13-h.p. Lambert (rec. 75 secs.).

Won by ¼ths of a sec. 25 entries.

A special prize (motor clock) was presented to the winner of the above event by Mr. W. T. Berry for the car using Pratt's spirit.

One Mile Scratch Race for cars listed at not more than £200, and to carry a driver only—

1. (Gold medal) Spencer Downing, 10-h.p. Alldays and Onions.
2. (Silver medal) W. E. Wadsley 4-h.p. Orient-Buckboard.
3. Dr. de Beauvais, 9-h.p. Oldsmobile.

Won by 28½ secs. 3 entries.

One Mile Scratch Race.—For cars not listed at more than £350 complete. Cars costing not more than £250 to carry a driver only, and cars costing more than £250 to carry a driver and one passenger:—

1. (Gold medal) J. W. Adams, 8-10-h.p. Humber.
2. (Silver medal) Spencer Downing, 10-h.p. Alldays and Onions.
3. A. R. Atkey, 14-h.p. Minerva.

Won by 16½ secs. 10 entries.

One Mile Scratch Race.—Chassis, price not more than £500, to carry driver and passenger:—

1. (Gold medal) J. Keele, 15-h.p. Darracq.
2. (Silver medal) F. C. Pullinger, 16-20-h.p. Humber.

Won by 5 secs. 12 entries.

One Mile Scratch Race—Chassis price not more than £700, to carry driver and passenger:—

1. (Gold medal) J. C. Wilson, 28-h.p. Daimler.

There were 8 entries, but Mr. Wilson had a walk over.

One Mile Scratch Race (open) for cars of any horse power:—

1. (Silver bowl presented by Mr. Kirkby). F. A. Bolton, 30-h.p. Daimler.
2. (Gold medal). J. C. Wilson, 25-h.p. Daimler. Won by 22 secs. Eleven entries.

To give the public an exhibition of speed afterwards, Mr. Cecil Edge drove over the course on his 90-h.p. Napier, and subsequently he was matched for a mile against Mr. F. A. Bolton's 30-h.p. Daimler (which received 20 secs. start), and Mr. J. C. Wilson's 28-h.p. Daimler (25 secs.). Something, however, went amiss with the Napier, and she failed to start with the others. The same thing happened at the second attempt. Of the other two Mr. Bolton's car won after an exceedingly close finish. Directly afterwards, when it was thought the racing was over, Mr. Edge's racing car came flying along the course at lightning speed. The meeting was held under the patronage of the Earl of Scarborough and Lord Willoughby de Eresby, M.P.; Lieut.-Col. R. L. Birkin, D.S.O., officiated as judge, Mr. E. W. Wells was starter, and Mr. Booth-Granger, an indefatigable hon. secretary. Minor details as to the management were left in the hands of an influential committee.

Henry Edmund's Hill-Climbing Race.—The contest for this challenge trophy, it is announced, is to take place on September 27th, at Blackdown Park, Fernhurst, Sussex, by the permission of Mr. F. S. Philipson-Stowe. Entries close on September 20th, and competing vehicles must be of the recognised tourist type fully equipped, and must carry four persons. The maximum value of the chassis must not exceed £1,000, including tyres. As in other club competitions, times will not be published. The trophy was won for the first time at Castlewellan, Ireland, in July, 1903, by Mr. Campbell Muir.

THE postponed Van Trials, it is stated, will probably be held in the spring, when the arrangements made for the September event will hold good for the later date.

Gordon-Bennett Cup Eliminating Trials.—Once upon a time, in the early part of the year of our Lord one thousand nine hundred and five, there were held certain speed and other trials in the Isle of Man, for the purpose of selecting cars and drivers to represent Great Britain in the Gordon-Bennett Cup Race on the Auvergne Circuit. The times for these tests have recently been discovered, and published in the Automobile Club official journal, and to make our record of the ancient and modern history of automobilism as complete as possible we reproduce these below:—

Car.	2½-Mile Stretch.	Half- Mile.	Mountain Climb.	Net Time of each Circuit.
	min. sec.	sec.	min. sec.	hr. min.
No. 1, Star, H. Goodwin	3 57	35½	6 41½	1 15½
	4 3½	33½	6 43	1 17½
	3 41½	33½	6 31½	1 32
	3 43½	34	6 15	1 18
	3 44	33½	6 23½	—
No. 2, Star, F. R. Goodwin	4 19½	43½	7 27	1 15
	4 34	37½	7 39½	1 21
	4 27½	41½	6 42	1 28½
	6 11½	38½	ret.	—
No. 3, Weir, A. L. Guinness	2 36½	24½	4 57½	1 7
	2 39½	26	ret.	—
No. 4, Wolseley, C. Bianchi	2 51½	25½	4 51½	1 1½
	2 32½	26	4 53½	0 59½
	2 34½	24½	4 58½	1 3½
	2 36½	25½	4 59½	1 1½
	2 34½	25½	4 57½	1 1½
	2 41½	25½	4 50	1 5½
No. 6, Napier, C. Edge	2 12½	22½	4 20½	0 57
	2 10	24½	6 41½	0 51½
	2 19½	24	4 25½	1 15½
	2 16½	22½	4 24½	1 25½
No. 7, Napier, C. Earp	2 17½	23½	4 38½	0 58
	2 11½	23½	4 37	0 57½
	2 13½	23½	4 43½	1 4½
	2 16½	24½	4 34	0 58½
	2 18½	23½	4 40½	0 59½
	2 18	25	4 48½	1 0
No. 9, Napier, J. Hargreaves	2 14½	31	4 38½	1 12½
	2 8½	23½	4 35½	0 57
	2 11½	30½	5 55	1 43½
	2 15½	24½	4 46½	1 5½
No. 10, Siddeley, S. Girling	2 38½	22½	4 19½	0 57½
	(27 30)	23½	ret.	—
No. 11, Wolseley, C. S. Rolls	2 34½	25½	4 46½	1 0½
	2 34½	25½	4 58	0 58½
	2 37	24	4 44½	0 59½
	2 17	26	4 37½	1 22
	2 25½	25	4 46½	0 58½
No. 12, Napier, Macdonald	(8 24½)	20½	4 13½	1 0½
	1 50	21	4 19½	2 43½
	2 4	21½	ret.	—

Scottish A.C. Hill-Climb.—The Hill-Climb announced for Sept. 23rd will take place on Sept. 16th, on Kirkfield Hill, Lanark, instead of the Meet announced for that date at Lochearnhead.

OCTOBER 8th has been selected by the *Paris Journal de l'Automobile* for a speed meeting at Dourdan, over the kilometre and the mile. The programme will include classes for racing cars, tourist cars, and electric vehicles.

THE proposal of the A.C. de France to have a big reliability trial for tourist cars in 1906 is expanding. The latest proposition is, starting from Paris, for the competing cars to travel to Nice, through Italy, to Venice, and from thence to Vienna, Berlin, returning to Paris by way of Holland and Belgium.

Vanderbilt Cup.—It has now been officially decided that the cars will race round to the left, as foreshadowed by us in a recent number of the Journal. In the opinion of many who have carefully examined the new course, of which we gave the official map last week, it is reported to be shorter, has poorer road foundation, is more sinuous, has heavier grades and more turns than the circuit used for last year's race. The approximate distances are: Hyde Park to Jericho, 9½ miles; Jericho to East Norwich, 3½ miles; East Norwich to Greenvale, 5½ miles; Greenvale to Willett's Road, 3 miles; Willett's Road to Lakeville, 4½ miles; Lakeville to Hyde Park, 3 miles. The circuit will have to be covered 9 or 10 times. In regard to the French team, the Richard-Brasier cars have been withdrawn, mainly in consequence, it is stated by Mons. Brasier, of the details of the race not being made public until such a late date, and that the circuit is far too short for racing. In consequence, a second Darracq car, to be driven by Hemery, will take the fifth place as qualified under the rules issued by the French club for the selection of their team.

Electric Vehicle Runs.—Following M. Vedrine's run from Paris to Trouville and back again, recorded by us on August 26th, M. Krieger has provided an even more convincing demonstration of what the ordinary society electric carriage can accomplish, by running two of his vehicles—a coupé and a landaulette—from Paris to Deauville and back again. The running time from St. Germain to Deauville being 4h. 10m. 14s. for the coupé, and 4h. 22m. 30s. for the landau, the former giving an average speed of something over 45 kiloms. to the hour. On the way a speed trial was made on the flat with one of the cars, and 500 metres was covered in 29½s., giving a speed in excess of 61 kiloms. per hour. The return journey was made on the following day from Deauville, and the two cars ran through to Paris in slightly longer running time, without, however, being recharged on the road—the landau taking 4h. 55m. and the coupé 5h. 14m. 16s.

FULLER particulars of the special contest to be arranged by the A.C. de France, in Paris, during the December Automobile Salon, announced by us in our issue of August 26th, have now been issued. The contest is to be held on December 21st, and all competing vehicles must be exhibited at the Salon in a special section devoted to them. The distance in and about Paris will be 100 kiloms., and the vehicles will be divided into two classes, (a) petrol or steam vehicles, (b) electric vehicles. Each class will be sub-divided into four categories, according to their total value, ranging from 5,000 francs to over 12,000 francs. The awards will be made on (a) regularity of running, (b) comfort, (c) the quality and finish of the carriage work. The entrance fee is 400 francs per vehicle, of which 200 francs is reimbursed provided the entered vehicle takes part in the contest, the remaining 200 francs being also returned in the event of the vehicle satisfactorily covering the course and complying with the regulations.

INSPECTOR JARRETT, of Egham, who may claim to rank as a motoring celebrity, has fallen a victim to a nasty accident. While good-naturedly assisting a carter whose "hay-motors" had run away, he received a blow in the face from the shaft of the vehicle, and was rendered temporarily unconscious.

MOTOR BOATING.

BRITISH INTERNATIONAL CUP.—"Brooke I" as she appears after the alterations which have just been made to her hull. Particulars of these modifications in design appeared in our issue of August 26th, the bows have been raised 12 inches, and a new hood has been fitted, which gives the boat a most business-like appearance. In addition, the steering gear has been shifted to the after deck and a permanent glass screen provided in front of the steersman, while the engine now has new valves and a modified carburettor. The petrol tank has been moved right aft and the new propeller has been designed for a normal engine speed of 800 revs. per min.

British International Cup.—As already intimated by us neither the De Dietrich boat nor the Hotchkiss were likely to start next Monday at Arcachon in this race on behalf of France, thereby leaving the burden of defending the Cup on Palaisoto. This last hope of France has now also faded away, as unofficially we learn that this craft will not start either. As announced by us last week the American Club have retired from the contest, advising their decision by cable, thus England will be left with her three representatives, Napier II., Napier and Brooke I. to "walk-over" the course in order to bring back the Cup which, through a technical slip, was last year taken out of the hands of Mr. S. F. Edge. Possibly this "walk-over" may provide just as good sport between the three British craft for the honour of being first past the line over the course as if both France and America had joined in the contest.

British Motor Boat Club.—In consequence of there being a doubt as to whether the 40-ft. racing boats, representing Great Britain at the International Cup races at Arcachon, will be back in time for the racing on 20th and 21st September, the date has been altered to 28th and 29th September. The races postponed from the 10th August will be held on the 30th September, thus making a three days' meeting. A medal will probably be given for the Flying Mile Championship.

NAPIER MAJOR has once again started upon her travels, and has been renewing the display of seaworthiness which has always characterised the performances of this exceptionally reliable ocean-going motor boat. One of her latest journeys provided a test of a most exacting kind, being carried out on a dangerous coast and in weather amounting almost to a storm. On the 17th of August she started from Southampton and encountered such severe wind in

attempting to round the Needles, that she had to put into Totland Bay and await daylight before negotiating the Channel through these dangerous rocks. Starting from Totland Bay at eleven the following day she proceeded on her course, but the sea was so rough in the passage between the Needles where the ebb-tide met the wind that she had once more to put back, and this time ran into Yarmouth for shelter. So severe were the conditions that even two tramp steamers, which can stand most things, also put into Yarmouth for shelter. On the 21st the journey was recommenced, and a very good run made to Portland Bill, and thence to Torquay in the teeth of a constantly increasing wind, arriving at the latter place safe and sound at 4 p.m. on the same day—an excellent performance under the circumstances. Paignton and Teignmouth were visited on the following day, and Napier Major spent the night at anchor off the latter place. At dawn on the following day a run was made back to Southampton with a strong south-westerly gale blowing behind, Southampton being reached at six the same evening. From Southampton the run was continued to Dover with a view of assisting the Channel swimmers, but the weather was so rough that their attempts were postponed. It is satisfactory to learn that in spite of the very trying weather experienced, no trouble whatever was given either by the engine or the hull of Napier Major, which proved, as before, thoroughly seaworthy even in a regular gale.



ALL automobilists take so philanthropic an interest in the activities and performances of the police, that doubtless the tidings that a retired policeman has become a famous manufacturer of violins will excite much sympathetic satisfaction in automobile circles. In fact, one of the ex-policeman's violins has, it is said, been purchased by the young Polish fiddler Von Fiedler—a suggestive combination of names.

THE THORNYCROFT "FLEET" AT THE MOTOR YACHT CLUB'S RELIABILITY TRIALS, 1905.—On the extreme left is the heavy-oil boat, and on the right the gas boat, while between them lie the three smaller petrol boats. All the five craft made meritorious performances in the trials.

MOTOR CYCLING.

Auto-Cycle Club.—The Auto-Cycle Club had a fixture on the card for Saturday last, which is rarely without interest. This is the Members' Consumption Trial, and as the club was again favoured with fine weather a very enjoyable time was spent. The rendezvous was the "Angel Hotel," Thames Ditton, and the trial consisted of a non-stop run to the crest of Hindhead and back, a distance of 57 miles. No pedalling was allowed, and the engine had to be kept running during the whole of the journey. Two cars were in attendance to set a uniform speed, not exceeding 20 miles an hour, and the competitors had to keep between these; if they dropped behind the rear car or got out of observation they were disqualified. Owing to dirt getting on the contact maker, Mr. White had to stop to clean this, and Mr. Smith did not complete the whole distance. The following are the results:—

Entrant.	Machine.	Weight.		Total.	Fuel.
		Ma- chine.	Rider.		
	h.p.	lbs.	lbs.	lbs.	ozs.
H. J. Densham	2½ Excelsior ...	188	158	346	77
E. W. Goslett ...	3 N.S.U. ...	192	140	332	84
W. H. Hayes ...	3½ Rex ...	195	155	350	91
C. G. Thistleton	2½ Bat ...	180	152	332	88
R. S. Fox ...	3 Rover ...	180	150	330	90
A. B. White ...	3 Roc ...	170	152	322	99
S. E. Pemberton	3 Singer ...	175	150	325	122
C. A. Smith ...	Ariel Trike ...	Did not finish.			
F. W. Applebee	3½ Rex Trimo	323 { Driver 136 Passenger 118 }		577	167

Mr. Densham thus wins the silver medal offered for the best performance on a basis of weight and miles per gallon as well as the additional prize for the lowest consumption irrespective of weight. The combined weight of the machine and rider was almost the heaviest, and yet it had the lowest consumption, viz., 118 miles to the gallon.

Mr. Bentley kindly placed his 24-h.p. Clement Bayard car at the disposal of the judges, and Mr. A. B. White brought over a 24-h.p. tonneau car, and these were of the greatest assistance in regulating the speed of the competitors, while Mr. E. M. P. Boileau drove his 10-h.p. Lagonda tri-car to the top of the hill and turned the competitors. Messrs. J. Lyons Sampson and A. G. Reynolds officiated as judges, and Messrs. G. Buryer, H. P. E. Harding, B. A. Hunt, and L. Meyrick Jones rendered valuable aid as observers. The trial was very well organised and carried out, and reflects great credit upon the secretary, Mr. Straight.

Motor Cycle Club.—The contest for the "Albert Brown" Trophy is now announced to take place on October 7th, entries closing on October 3rd. The run will be open to members of the club only, at an entrance fee of 5s., and is therefore a "closed" competition. The rules which govern the trophy provide that the competing motor cycles must be *entirely* of British manufacture. The trial is one of reliability, not speed, and, in addition to the trophy, there are second and third money prizes and a special gold

medal for the best tri-car or passenger vehicle, certificates being given to all drivers qualifying for the final. The trial is a non-stop run of 100 miles, followed, after an interval of one hour for lunch, by a further non-stop run of 50 miles. Each 50 miles must be covered in not less than 2 hrs. 40 mins., a maximum time of three hours being allowed for the distance. No dismounting is allowed during the runs, and only adjustments that can be performed from the saddle while the machine is in motion. During luncheon no adjustments are permitted, but tanks may be filled with petrol and water-cooled engines with water. Additional lubricating oil will not be allowed. The start, which will be within 30 miles of London, takes place at 6.30 a.m., and, in the case of a tie between two or more competitors, special provision is made to decide the winner by extra tests.

Ulster Hill-Climb.—On Monday last the members of the Ulster section of the Irish Motor Cycle Union held the annual hill climb, postponed from the previous Saturday, owing to the inclement weather. Eighteen figured on the card, out of which ten took part in the contest. Ireton, from scratch, did best time, but did not get placed in the event. The conditions were far from favourable, rain coming down before the finish. The contest was held on Gilnahirk Hill, and the times were taken by Messrs. H. J. Shimmions and R. McCann. The results were as follows:—

Name.	Motor Cycle.	Handicap.	Time.
1. A. B. Hamilton	Ormonde	30 sec.	0'53
2. A. Bullock	R. and P.	45 "	0'59½
3. J. Rea	Minerva	25 "	1'2
4. P. Connell	Minerva	20 "	1'5½
5. W. R. Ireton	Riley	scratch	1'7
6. J. Kenneth	Minerva	18 sec.	1'8
7. H. B. Ferguson	Minerva	scratch	1'10½
8. J. Stewart	Triumph	12 sec.	1'12½
9. W. Corry	Minerva	14 "	1'17½
10. H. J. Wilson	Minerva	18 "	1'18½

200 Miles Reliability Run.—On Saturday the annual reliability run, confined to members of the Ulster centre of the Irish Motor Cycle Union, took place. The route was from Belfast to Londonderry and back, the outer journey by the coast and the return by the inland road from Coleraine, through Ballymoney, Ballymena, and Antrim. The prize, the St. Moore Cup, was already put up for competition on two occasions during the present season, but owing to the weather conditions a postponement was compulsory on both. Six competitors started on Saturday, the weather being anything but satisfactory, while the roads were fearfully cut up owing to the rain of the previous week. Before Limerick was reached on the outer journey, Messrs. Parker, Lavery, Whally, and P. S. Brady had retired. Messrs. Stewart and Bullock, riding on, reached Londonderry. After the usual stay the return journey was entered on, and after a gruelling ride Stewart reached the Gown and Shamrock Hotel, Belfast, and was followed soon after by Bullock. The result was a win for Stewart, as under:—

1. J. Stewart, Triumph, 7h. 7m.
2. A. Bullock, R. and P., 7h. 52m.

AERONAUTICS.

It hardly comes within our province to deal with the performance of ordinary undirigible balloons, but considering the long and intimate connection maintained by Mr. Frank Butler with the Automobile Club, a special interest will be felt by all its members, and by automobilists generally, in the adventurous manner in which Mr. Butler, in his balloon *Vera*, accompanied by Mr. Percival Spencer, decided on seeing the eclipse, which on last Wednesday proved unfortunately invisible to the greater majority of Londoners. In a high wind, estimated at about 33 miles an hour, the adventurers started from the Putney Gas Works, and rising above the clouds obtained a number of good views of the eclipse, of which they took photographs. Afterwards they passed through several snowstorms, crossed the Channel where its width is very considerable, and ultimately landed at Caen, in Normandy.

Mr. Butler's short but pithy description of his adventures is as follows:—

"London was in a fog of clouds, and rising up from Wandsworth and Putney Gasworks at 12.45 in 2½ minutes we were in the sun. Immediately we began snap-shooting at the sun, and took some splendid photographs of the eclipse, and owing to the sun being so brilliant three pairs of fumed glasses had to be used. In an hour and a half a siren was heard, and we knew we were near the sea, as we had not seen land from London. Here we saw the piers at Brighton and the breakers dashing and roaring against the beach.

"For five hours and thirty-five minutes from the shores of Albion we were at the mercy of the wind above the sea. Below were a few steamers and sailing-vessels going down the Channel. Rising to 10,200 feet deep silence prevailed, and snow began to fall. We had calculated to make France in three and a half hours at the rate of speed we had been travelling from London to Brighton, which was 33½ miles an hour. Descending again we saw nothing but a rough sea with white foam tops, but our compass shewed that we were still going south. We tied up our cameras in the hoop to prevent the films getting wet, in case we had no ballast and came down into the sea.

"At last we saw a harbinger of land, which was a seagull, and soon after some fishing boats, so we thought we could not be far from the French coast. Nine fishing boats appeared, and a black line with white waves marked the coast. At 7.45 a lighthouse and

the lights of a town began to appear, which Mr. Butler thought was Trouville. We soon arrived over the town, and heard the shouts of people in the Casino. We landed at 8 p.m. in some fields at La Délivrande (a suggestive name to land at), near Caen, in Normandy, after being dragged a mile across the fields before the grapnel would hold. Leaving the balloon to empty itself, we walked to the light of the village and found comfortable sleeping accommodation at the hotel 'Notre Dame.' Sending the balloon from Caen by steamer to Newhaven, we returned to London *via* Trouville and Havre, after making the record voyage of 200 miles in the widest part of the channel. The air recognises no frontier, Custom-house, octroi, or police for furious driving."

Mr. BALDWIN, the aeronaut whose navigable balloon gave such an excellent account of itself at the St. Louis Exhibition last year, has tragically become a victim to his own enterprise. In the presence of a large crowd of people at Greenville, Ohio, Baldwin went up in his balloon to demonstrate that dynamite could be successfully exploded (for military purposes) from a balloon. He demonstrated it to perfection, but the detonation occurring before it was intended, blew him and his balloon into tiny pieces, a frightful explosion being observed at a moment when it was assumed the aeronaut was liberating the dynamite to drop upon the ground below. The balloon was suddenly blotted out by a huge cloud of smoke, and this was followed by a rain upon some of the spectators of pieces of balloon and fragments of the adventurous aeronaut all mixed up together. It is believed that the explosion occurred when Baldwin was adjusting a fuse to one of the sticks of dynamite with which he was proceeding to experiment.



"HAY MOTOR CO., LTD." is the title of a new company which has just been registered. This is not, as might be supposed, a forlorn hope to rehabilitate the horse in popular favour by way of company exploitation of him, but refers by the irony of circumstances to a company for manufacturing motor cars, cycles, and other vehicles, of which Mr. W. G. Hay is the leading spirit.

CLUBS AND ASSOCIATIONS.

We referred last week to the splendid example set by the Leicestershire Automobile Club in giving the cripple children of Leicester an outing on motor cars. We are now enabled by the courtesy of Mr. A. M. McAlpin, the Hon. Secretary, to reproduce the above interesting photograph showing by the happy expression on the faces of the afflicted ones the appreciation which the kindly action created. Amongst those who lent cars for the occasion were:—Messrs. E. G. Mawbey (president), J. A. Corah (vice-president), H. A. Hamshaw, Capt. Byron, H. H. Wildt, E. H. Faulkner, G. H. Wait, C. Bennion, T. C. and S. W. Clarke, J. A. Bennett, W. G. W. Reynolds, Dr. Pemberton Peake, H. E. Barron, J. E. Johnson, J. A. Doran.

The Automobile and Cycle Engineers' Institute.—The opening meeting of the session 1905-6 will be held in Birmingham on Thursday, the 26th October. At this meeting the president for the year (Mr. A. E. Tucker, F.I.C.), will deliver his presidential address, which will probably take the form of a paper.

A.C. of West Australia.—On July 1st this now healthy club held their first opening meet at Perth, W.A. The cars started from Government House Grounds, when the official send-off was given by His Excellency Admiral Sir Frederick Denham Bedford, G.C.B., the members joining in a procession headed by the President Mr. A. E. Morgan's car, along Mounts Bay Road to the residence of the Vice-President, Mr. K. Strelitz, at Cottesloe. Upon the conclusion of the return journey the members were entertained by the President. Amongst cars which took part in the run were Daimlers, De Dions, Oldsmobiles, Rovers, &c. The one regret of the indefatigable secretary, Mr. Alfred W. B. Mather, appears to be that so far they have not seen a Napier car in the Colony. The West Australian Club is already making considerable progress and is helping to spread the cause materially in the Colony. Already there is a fine motor omnibus service in Perth successfully competing against the electric trams, which in so young a State is a big feather in the cap of the motor industry. In order to help matters along, the Committee of the club are prepared to allow makers' catalogues, designs, and drawings to lie upon the reading-room table for the use of members and their friends, and we hope that all the trade throughout Great Britain will speedily take the fullest advantage of this offer by sending out a batch of their latest literature.

Blackheath A.C.—The members of the club were "at home" on Saturday last in the grounds of the 2nd Volunteer Battalion, the Queen's Own (Royal West Kent Regiment) upon Blackheath, lent for the occasion by Col. E. J. Heward, V.D. The parade ground proved an ideal site for the very successful gymkhana which was the attraction of the day, 28 to 30 cars taking part; about 150 members and guests were present, including Col. H. C. L. Holden, R.A., F.R.S., who acted as judge, Messrs. Granville M. Kenyon (Secretary of Kent Automobile Club), R. S. Jackson, F. W. Warrington, Dr. Hooper, Dr. C. Firth, &c. Mr. Leonard Beadle, the captain of the club, acted as clerk of the course, and was assisted by Messrs. A. Jackson, H. A. Cunis, H. A. Boak, Stanley Norfolk and other members of the club.

In the gymkhana which took place the following events were carried out and created much amusement, and at times excitement to the onlookers.

Crawling Race.—1. Leonard Beadle; 2. E. H. Fraser.

Reversing Race.—1. Fred Thorne; 2. E. H. Fraser.

Starting and Stopping Race.—1. L. O. Eagleton; 2. Dr. C. Firth.

Motor House Race.—1. R. Kingsnorth; 2. Fred Thorne.

Speed Judging Competition.—The constables on duty at the gates and others in the vicinity were invited to join in this competition. 1. Fred Thorne; 2. A police constable.

The band of the regiment played a good selection of music under the conductorship of Bandmaster C. S. Birkhead, and afternoon tea was served in the drill hall adjoining the parade ground.

IN regard to the five Daimler cars which took part in the Herkomer Trophy event, and the report that they all suffered from tyre trouble, the Continental Tyre and Rubber Company write us as follows:—"We should like to point out that Mr. Philip Dawson, whose 35-h.p. Daimler car was the only one fitted with Continental tyres, informs us that he made the run from London to Bavaria and back, and also took part in all the trophy competitions without the very slightest trouble with tyres, and without having had a single delay due to punctures."



LAST week we gave an account of the marvellous adventures of a certain motor cyclist of the name of Frederick Payne in the neighbourhood of Maidstone, who according to his own account was set upon by a gang of hooligans, and only escaped with his life and motor bicycle by firing over their heads with a revolver, and ultimately right through the hand of one of them. The alleged hooligans are, it appears, harmless mariners of the most exemplary character. That, at any rate, is what they say themselves, according to the *Kent Messenger*. On the occasion referred to they were, they stated, walking along the road two and two, one of them with a young lady heading the procession, when the apparition of a motor bicycle suddenly hove in sight, and without word or warning commenced to discharge a revolver as if it were a Maxim gun. Such, therefore, being the very conflicting character of the occurrence, as given from opposite points of view, we await the result. The police court proceedings which have resulted with a considerable amount of interest.

An Adaptable Commutator.—A very simple form of commutator, which can be made suitable for fitting to any make of engine, has recently been brought out by Messrs. Conningham. The device, shown complete and dismantled in our illustration, consists of a brass casting, A, fitted with an ebonite insulating ring, A², which carries the "live" terminal, C, and the commutator, B,

Everybody was thoroughly delighted, particularly the outside passengers, who enjoyed a view not only of the Surrey and Sussex scenery but also of the eclipse, which was denied to most Londoners. Of course the pace was not tremendous, and a representative of one daily paper who, perhaps, had relied on a speed of 30 miles an hour to cool the fevered contents of his

skull, was quite annoyed at the steady progress made, and indulged, in a subsequent account, in a very tolerable effort at sarcasm at the 'bus's expense. At the same time, we think the promoters of the enterprise showed moderation and good sense in not attempting a high rate of speed. It is all very well for ordinary motor cars with a few passengers on board to run up to the legal limit, but 7 tons of 'bus and passengers hurtling along at that speed on an ordinary road would not be a pastime to encourage too much. Everybody but the gentleman to whom we have referred seemed to thoroughly enjoy the tour. The weather was, perhaps, not ideal for the Brighton Road, but the

A2

A. Brass casting.	B Revolving ebonite com-	B ³ Brass plate on back of B
A ¹ Timing lever fixed to A.	mutator.	C Terminal on A.
A ² Ebonite insulating ring.	B ¹ Brass segment on B.	C ¹ Spring contact in C.
A ³ Screws holding A ² to A.	B ² Brass bush on B.	D Oil hole.

which forms the revolving portion. The adaptable part of the apparatus consists of the brass casting, A, which can be made to any size. The ebonite ring, A², which is standard for all sizes, is fastened in place by three equidistant screws, A³, so that the casting, A, may be shifted round to bring the timing-lever, A¹, into any desired position relatively to the terminal, C. The terminal, C, is mounted on the ebonite ring, A², and is fitted with a spring-contact, C¹, which presses on to the revolving commutator, B. The commutator, B, is of ebonite, and is mounted on a brass bush, B², which forms one piece with the disc, B³, on the back of the commutator. In electrical connection with the disc, B³, is the commutator segment, B¹, which makes contact, once every revolution, with the spring terminal, C¹. An efficient "earth" is ensured by the contact between the disc, B³, on the back of the commutator and the casting, A, as well as by the usual connection between the brass bush, B², and the shaft on which it is mounted. The commutator is intended to run in oil, and the oil hole for this purpose is plugged with a screw, D. A brass cover plate is attached to the front of the ebonite ring, A², and is held in place by the same screws, A³, which fasten the ebonite ring, A², to the casting, A.

trip certainly provided an occasion for demonstrating to the insensate votaries of mere speed, what the pleasures really are of travelling along a country road at moderate pace, a pace which is, after all, in excess of the stage coaches which used to provide such a popular means of travelling from London to Brighton. None of the travellers should run away with the idea that the 'buses could not have gone faster, but the Local Government Board, in its wisdom or caution, has limited the speed of "heavy motor cars" to twelve miles an hour. In fact, that twelve miles is itself a concession which is only enjoyed by rubber-tyred vehicles. At the same time, though the limit is reasonable enough for motor 'buses in crowded towns, some relaxation might be permitted on open country roads.

London to Brighton by Motor 'Bus—The motor 'bus trip, organised by the London Motor Omnibus Company, to Brighton and back, on Wednesday last, by way of inaugurating a week's trial prior to establishing a regular service, was a decided success. Three good tons of passengers were transported from London to the sea, the 54 miles from the starting-point—the Metropole Hotel—to the finish at Brighton being covered in a little over four hours of running time. The return journey was only marred by the way being lost, thereby causing some delay.

LONDON TO BRIGHTON BY MOTOR OMNIBUS.—The start of the "Vanguard" Motor Omnibus from the Hotel Metropole for its inaugural run to Brighton and back on Wednesday, August 30th.

An example of a 15-h.p. Ryknield landaulette which has just been specially completed for Mrs. Lewis Waller for use during her summer tour with "The Admiral's Lady." The car is fitted with a Ryknield standard three-cylinder 15-b.h.p. engine and is British built throughout.

Overhanging Trees.—We have rarely heard anything more absurd than the accounts of certain legal proceedings which have just taken place in the Isle of Wight. Near Seaview, in the neighbourhood of Ryde (the place where recently motor boat events were held) there is a tree hanging over the public highway, and projecting from the property of Mr. W. A. Glynn, J.P. This magistrate has been summoned to show cause why he should not remove a large branch of his tree, and according to the reports published he has been "showing cause" by maintaining that the motor 'buses which run along the road are not carriages entitled to the protection of the Highways Act. This contention is ludicrous enough as the Motor Car Act of 1896 particularly states that a light locomotive is a carriage for the purposes of any previous Act of Parliament. Possibly Mr. Glynn thought that this only meant that a motor car is a carriage in this sense for the purposes of facilitating punishment. According to the Highways Act of 1835 :—

"If the surveyor shall think that any carriage-way or cart-way is prejudiced by the shade of any hedges or by any trees . . . it shall be lawful for any one justice of the peace on the application of a said surveyor to summon the owner of the land . . . to show cause why . . . such trees are not pruned or lopped in such manner that the carriage-way or cart-way shall not be prejudiced by the shade thereof . . . or why the obstruction should not be removed."

The surveyor of the old Act is now in general the District Council, but from the above quotation it is quite clear that whether a motor 'bus is or is not a "carriage" has nothing at all to do with the question. We are not surprised, therefore, that the case went against Mr. Glynn, though "a case" is to be stated.

"WITH Webb Jay horribly smashed, and even now not out of danger; with Earl Kiser in a hospital minus a leg; with Barney Oldfield swathed in bandages after miraculously escaping death, humanity calls for the immediate suppression of automobile track racing."

The foregoing paragraph in an American automobile contemporary sums up the feeling in the United States which appears *at last* to have taken hold strongly of the majority of those concerned, in regard to the unsuitability of tracks for automobile racing, a conclusion which was reached several years ago in this country. The agitation to stop this foolhardy track racing has been brought to a head by the shocking accident at Buffalo, of which we exclusively gave particulars in our issue of August 26th, to Webb Jay, one of America's most popular motor drivers, who has so long been associated with the White Steam Car Company. Webb Jay's machine, after crashing through the fence, rolled down the embankment into a sheet of muddy water, the crash through the fence having rendered Jay unconscious. He was himself found with his head imbedded in mud and water. The injuries which he sustained were a broken right arm, a compound fracture of the left leg, even

broken ribs, and concussion of the brain. In addition one of his lungs was lacerated by his splintered ribs, and he was otherwise internally hurt. It was hardly surprising, therefore, that at the time the news was cabled his life was despaired of, but in spite of all this complication there now appear to be hopes of Jay's ultimate recovery.

THERE has just been launched at Guernsey, locally built by F. Crespin, boat-builder, after designs by the owner, Mr. Louis R. Cohen, a 25 ft. semi-torpedo-launch. The engine is a 15-h.p. twin-cylinder petrol motor, from the workshops of the Truscott Boat Manufacturing Company, of St. Joseph, U.S.A.

TOURIST TROPHY RACE.—A disastrous trial run in Wiltshire resulted in the wrecking of the original Scout Car entered by Messrs. Dean and Burden. Another chassis is being built, and this may yet be ready for the Race. This is almost the only new make of car entered for the event. It has a live axle, four cylinders, and three speeds.

THIS week we draw attention editorially to the improved spirit which appears to be animating magistrates in various parts of the country in dealing with the automobilists arraigned before them. The Andover Bench, however, still maintains its notorious reputation. Last week we drew attention to the preposterous utterances of the chairman, Colonel Harman, as regards speeds for motor cars on a main straight open country road. This week Mr. Stephen Coleridge was one of the victims brought before this tribunal. In spite of the most lucid and convincing evidence tendered both by Mr. Coleridge and his chauffeur, and the fact that Mr. Coleridge himself was in possession of testimonials from two of His Majesty's judges bearing witness to his great carefulness as a driver, the Andover Bench fined him £5 and costs. We are glad to learn that notice of appeal was given. As we have pointed out, the proper method of dealing with an exceptionally reactionary bench of magistrates of this kind is for as large a number as possible of automobilists, unfairly convicted by them, to appeal if they can afford it. It is flagrant cases of this kind which more than justify our suggestion that under any revision of the Motor Act provision should be made for the recovery of costs to follow automatically in successful cases of appeal.

WE have often pointed out to what an extent some of the evening papers, which appeal, or attempt to appeal, to the masses, do their best to inflame irritation against the automobile movement by mis-stating and exaggerating wherever possible (or whenever they think of it) all cases of accident in which a motor vehicle is even remotely connected. On the 25th of May last, a case was recorded in the *Star* in the following words:—

"Joseph Bates, when cycling at Hendon, collided with a motor, and was killed instantaneously."

A coroner's inquest was held on the death of Bates on the 29th of the same month, and this is the verdict at which they arrived:

A 10-h.p. Clement delivery van, which in the recent French Delivery Van Trials was successful in winning five medals. But for the postponement of the Van Trials in this country, this would have been one of the types of vehicle which would have represented Mr. E. H. Lancaster in the competition; he controls this particular type of vehicle in England.

A NEW MODEL DURYEY CAR.—This identical carriage has just been delivered to Mr. Garrett Campbell, of Belfast, and is of 15-h.p. The wheel base has been reduced from the regular standard size to 7 ft. 6 in., in order to give greater latitude in narrow roads and turning. The extension hood with which the car is fitted folds back to form a dust screen in dry weather. The hole seen in the side of the battery box on the foot-board is where the starting handle is inserted. The car is fitted with Collier tyres and weighs just over 17 cwt.

"Joseph Bates died from shock and concussion of the brain and other injuries, which the deceased sustained when he fell from his bicycle in Colin Deep Lane, he having lost control of his machine, and from accidental causes."

As a matter of fact the motorist and his car arrived after the accident, and rendered valuable assistance. Comment is needless.

APROPOS of a motor car accident to the Marchioness of Headfort, which she sustained when motoring to Headfort Castle, near Kells, in Ireland, from which the Marchioness fortunately escaped (almost miraculously without injury), the same paper has the taste to head its account of the incident "Maisie's Motor Smash," but, alas, for the veracity of our enterprising contemporary, the Marchioness was not in the car at all!

A MOTORIST should be an awkward person to attack, as if he has pluck and presence of mind he generally has a handy weapon about on his car. Such was the case of Mr. Carter, a young American, who was recently attacked by two Paris hooligans—*Apaches*, we believe, is what they call themselves in Lutetia—who went at him with knives, desiring to obtain possession of his lunch basket, valise, or something of that kind, which was attached to the car. He was repairing the tyre at the time, and he felled one of the hooligans with the iron cover remover which he held in his hand, whereupon the other one took to flight, and two policemen appeared on the scene.

WHAT might have been a serious fire on Wednesday last, on the premises of Fiat Motors, Limited, 37, Long Acre, was speedily checked by the use of the New Era Extinguisher, which promptly subdued the petrol flames. As it was, only three cars were destroyed of the £30,000 worth of stock, and the promptness of the arrival of ten fire engines saved the premises from serious damage. Business has, therefore, in no way been interfered with.

THE Car and General Insurance Corporation, Limited, under the able management of Mr. Frederick Thoresby, advise us that they have just opened a new department for the insurance of live stock, plate-glass, &c. Mr. G. W. Hinde, the late assistant secretary of the National Live Stock Insurance Corporation, will have the management of this department, thereby ensuring that the Corporation will not be venturing into a new field without providing the necessary experience for its successful carrying on.

THE Heaton Moor Motor and Cycle Works, of Stockport, advise us that they have removed their garage from Birch Avenue to larger premises at Portland Grove, Heaton Moor Road. At the new address they have accommodation for about thirty cars, and have a range of machine tools, dynamo for recharging, vulcaniser for tyre repairs, and a specially constructed inspection pit, which is provided with an airshaft with a revolving cowl to draw off all petrol vapour. Accessories of all descriptions and petrol are stocked, and to provide against the chance of fire the whole floor of the works and garage has been concreted.

Fiat Motors, Limited.—The directors of Fiat Motors, Limited, have declared a dividend of 5 per cent. per annum on the preference shares, and an interim dividend of 5 per cent. on the ordinary shares, for the six months ending June 30th.

WE are informed that the A.C.G.B.I. have expressed a wish that the 10-guinea cup offered by the Continental Tyre Company for the fastest circuit on Continental tyres in the Tourist Trophy contest should be withdrawn, as it would tend to interfere with the rules of the competition.

MR. THOS. VICKERY has, under the name of the Ealing Park Motor and Cycle Engineering Company, started a repair depot at 11, Twynham Terrace, Ealing Road, W. The works are situated between Ealing and Brentford, connecting the Oxford and Bath roads. They include a range of the necessary machinery for effecting all kinds of repairs, a complete vulcanising plant, facilities for charging accumulators, &c. Petrol, oil, grease, and all the usual requisites are stocked. Mr. Vickery is also prepared to keep cars in order for a fixed sum per annum.

BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

27361. 15th December, 1904. Improvements in and relating to Carburettors for Internal Combustion Engines. Frederic de Mare, 122, Boulevard Leopold II, Brussels. The principle of this carburettor consists in causing a current of air to pass through a thin sheet of carburetted liquid. This thin sheet is obtained by a kind of endless belt of metallic gauze plunging into the liquid and revolving with a continuous or intermittent movement in front of the air-feed pipe. There are twenty figures. Fig. 5 is a section of the carburettor. On each of the spindles, 9 and 10, there is respectively keyed a metal drum, 11, 12, provided with toothed cheeks, 13, 13, intended to carry along the metallic belt, 14, having more or less fine meshes, and the edges of which are perforated to enable them to engage with

27. It may be necessary to modify the original mixture and to add a fresh quantity of air thereto; this is the duty of the movable cone, 28, which is tightened up or loosened according to whether it is desired to restrict or increase the air-feed. By operating the diaphragm, 21, and the cone, 28, it will be seen that it is easy to obtain mixtures varying greatly in their composition.—August 17th, 1905.

17543. 18th August, 1901. An Improved Coil Friction Clutch. William H. Lindsay, Benview, Overton Road, Johnstone, N.B., and Haden K. Couper, Kirkfield, Johnstone, N.B. This invention consists in a coil friction clutch in which the coil friction is created by the expansion or opening out of a split or divided wheel which is surrounded by the coil. The clutch is specially designed for use in driving at high speeds as in automobiles. There are six figures. Fig. 1 is an elevation of the clutch. Fig. 3 is a transverse section on the line, x x, of Fig. 1. Keyed on the driving shaft, *a*, is a driving

coil, *c*, and driving plate, *b*. To put the clutch into action the sliding collar, *i*, is moved along the driven shaft, *e*, into contact with the set pin, *h*. Under the pressure exerted on the set pin, *h*, by the collar, *i*, the lever, *g*, turns about its pivot, *f*, and the wheel, *d*, is opened out or expanded at *d'*, and binds against the inner face of the coil, *c*. The driving shaft, *a*, is thus made to rotate with the driven shaft, *e*. The binding action of the coil, *c*, is first set up by the outer turns of the coil, that is to say, by the turns on which the heads, *c'*, are formed. The remaining turns of the coil are tightened after the outer turns, and thus the binding action between the wheel, *d*, and the coil is set up gradually.—August 17th, 1905.

Patent Specifications Published.

Applied for in 1904.

Published September 7th, 1905.

- 13,314. C. B. REDRUP and W. A. RICHARDS. Gas and oil engines.
- 17,769. F. W. GUNTON. Side carriages for motor cycles.
- 17,961. DUGALD CLERK and others. Intl. combin. motors.
- 18,044. B. T. HAMILTON. Radiators and condensers.
- 18,045. B. T. HAMILTON. Carburettors.
- 18,070. J. T. BROWN. Motor cycles.
- 18,404. C. V. KERR. Continuous combustion turbines.
- 20,080. A. T. COLLIER and others. Attaching tyres.
- 20,081. A. T. COLLIER and others. Pneumatic tyres and wheels.
- 20,144. D. B. HISLOP. Cushioned pneumatic tyres.
- 20,861. E. J. DE NORMANVILLE and others. Epicyclic speed gearing.
- 21,622. R. KENNEDY. Electric ignition.
- 21,989. W. F. THOMAS. Seat.
- 22,289. G. M. LEES. Variable speed gears.
- 22,353. C. BINKS. Radiators.
- 22,637. L. MACQUAIRE. Sparking plugs.
- 23,265. F. PILAIN. Live axles and wheels.
- 24,103. E. TUCKER and A. F. GUNSTONE. Carburettors.
- 28,348. H. J. MUNTZ and E. L. BROWN. Heat radiating devices.

Applied for in 1905.

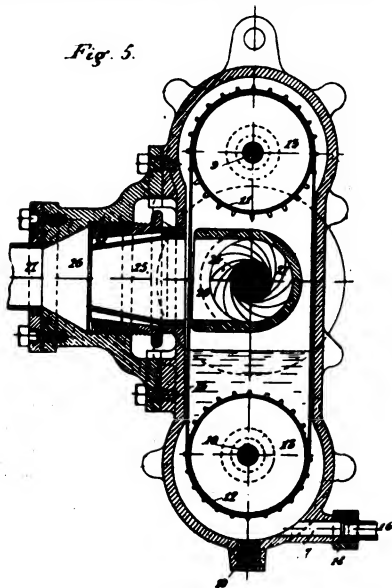
Published August 24th, 1905.

- 1,217. A. PELOUX. Intl. combin. motors.
 - 1,689. H. GILARDONI and H. LERICHE. Carburettors.
 - 9,059. CIE. FRANCAIS ELECTROMOBILES. Automobiles.
- Published August 31st, 1905.
- 3,613. A. WESTMACOTT. Carburettors.
 - 6,833. C. S. Vaughan. Power transmitting mechanism.
 - 12,496. E. EVRARD. Sparking plugs.
 - 15,046. P. CLERGET. Self-propelled road vehicles.

Published September 7th, 1905.

- 2,247. ALBANY MFG. CO., LTD. and F. LAMPLOUGH. Radiators and steam condensers.
- 2,644. P. W. NOBLE. Motor vehicles and lamp brackets.
- 8,914. J. MELLEIS. Valve gear.
- 11,680. L. A. A. HENNEQUIN and G. J. B. CAYEUX. Combustible liquids for explosion motors.

Fig. 5.



the teeth on the cheek, 13. The movement is communicated to the belt by one of the moving parts of the motor connected to the toothed wheel. The carburetted liquid is fed through the pipe, 16, connected to 17 by a nut, 18. The carburettor can be emptied by the outlet, 19. By its movement the belt plunges into the liquid, and by surface tension (capillarity) carries along in its meshes a fine sheet of liquid which passes before the bent pipe, 20, the inlet orifices of which may be closed more or less by a diaphragm, 21, actuated by a lever provided with an index finger showing the size of the aperture. In front of this diaphragm there is a piece of wire gauze, 24, for filtering the air sucked in. In its passage through the moving band of gauze the air has mechanically carried along the liquid contained in its meshes, and has become thoroughly mixed therewith. On leaving the gauze the mixture is conducted by the cone, 25, into the conical chamber, 26, and thence to the cylinder by means of the tube,

Fig. 1.

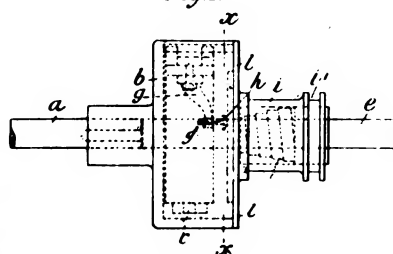
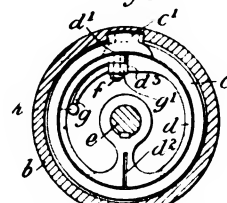


Fig. 3.



plate, *b*, which is a cup-shaped shell recessed to take the heads, *c'*, of the coil, *c*, which surrounds the wheel, *d*, which is split or divided at *d'*, and grooved at *d''*. The wheel, *d*, is mounted and keyed on the driven shaft, *e*. The division, *d'*, enables the wheel, *d*, to be sprung open with little pressure. The groove, *d''*, facilitates this, and increases elasticity in the wheel, *d*. In the wheel, *d*, is a pin, *f*, on which is pivotally mounted a lever, *g*, having a head or boss, *g'*, which is in the nature of an eccentric. The enlarged part of the boss, *g'*, bears against the face, *d''*, of the split or division, *d'*, of the wheel, *d*. At the tail of the lever, *g*, is a boss, *g''*, into which is screwed a set pin, *h*. The coil, *c*, has two heads, *c'*, which fit into recesses provided for them in the driving plate, *b*. The turn of the coil, *c*, between the heads, *c'*, are bored inside to a slightly larger diameter than the turns on which the heads, *c'*, are formed. Normally, that is to say, when the clutch is out of action the split wheel, *d*, rotates within the

The Automotor Journal, September 16th, 1905.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Sept. 16	... Hill Climb, Tricars (Southern Motor Club).
Sept. 16	... Scottish A.C. Hill Climb.
Sept. 23	... Motor Cycle Hill Climb (Hertfordshire A.C.).
Sept. 23	... Motor Cycle Hill Climb (Sheffield A.C.).
Sept. 27	... Henry Edmunds Hill-Climbing Trophy Race.
Sept. 28-29-30	... Motor Boat Burnham-on-Crouch (B.M.B.C.).
Sept. 30	... Auto Cycle Club Race Meeting, Crystal Palace.
Oct. 7	... Albert Brown Cup (Motor Cycling Club).
Oct. 7	... Scottish A.C. 100 Miles Run.
Oct. 14	... Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17	*Quarterly 100 Miles Trials.
Nov. 17-25	... Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.	
Sept. 16-17	... Ventoux Hill Climb.
Sept. 19	... ½ Litre Consumption Trials (Motor Cycles).
Sept.	... Motor Bicycle Race (French Ardennes).
Oct. ...	... Vanderbilt Cup.

* Automobile Club of Great Britain and Ireland Events and Papers.

PASSING EVENTS.

The Pre-eminence of the British Motor Boat.

SOME reflections are suggested by the fact that in the race for the International Cup, which was held in Arcachon Bay on Monday, of the four starters three proved to be English motor boats, while only two, the Napier boats, successfully ran over the course. At the last minute, when it appeared that there would be none but English competitors, the French succeeded in putting M. Thubron's Mab forward to sustain the fight on the part of France, so that the event should not be merely a "walk over" for the English boats. Everybody must admit that this was a sportsmanlike thing to do. But the small number of entries, and the total absence of interest in the competition displayed by so "motoriously" progressive a country as France, seems to show that belief in the value of the racing motor boat is on the wane. We do not believe that this is altogether due to the fact that the British industry has, as in the present, proved itself so generally superior. Rather are we

inclined to conclude that our neighbours recognise that more pecuniary return is to be obtained from developing the commercial motor boat.

And this may perhaps be the reason why they have made no great efforts to enter the lists in the mere racing boat contests, for, after all, almost a bigger gap separates the racing motor boat from the commercial harbour barge than exists between the racing motor vehicle and its commercial counterpart. There is an enormous future before the motor harbour boat, or barge, as is very clearly shown by the investigations carried out by Sir Christopher Furness and the Members of Parliament whom he has personally conducted to a number of foreign ports where motor boats are successfully employed for the trans-shipment of cargoes. In Dutch and Belgian ports alone there are some 3,000 to 4,000 of these boats in use for this purpose, while a huge number are also employed at Hamburg, Bremen and other foreign ports. The motor barge has as yet hardly found its way into the port of London, and it is not surprising, therefore, that Sir Christopher Furness described the English method of dealing with cargoes as suitable to the days of Queen Elizabeth, but wholly antiquated now. In spite, therefore, of the seductions of international races, in which English motor boats have shown up so triumphantly, we would recommend, for the benefit of the country and the motor boat industry, that motor boat builders should devote a certain proportion of their energies to the equipment of suitable harbour motor barges. When it is generally known that harbour motor boats can be obtained, the appearance of the motor barge in our principal ports, with all the attendant benefits that will result, both for its manufacturers and for those who use it, will not be long delayed.

♦ ♦ ♦ "The Coming of the Motor 'Bus.'"

THIS heading forms the title of a leaderette in the *Pall Mall Gazette*, based on statistics provided by the *Daily Telegraph*, and designed to show that our seaside resorts at any rate have proved the efficiency of the motor 'bus as a competitor with the tramway. Many of our seaside towns have shown themselves particularly enterprising in the adoption of the motor 'bus, and it is satisfactory to learn that the 'bus services in most of them are doing well, while the service running in Torquay has special claims on the attention of promoters of motor 'bus undertakings, as in this case the annual report shows that after putting aside an adequate sum for the renewal of tyres, the company, which is running in competition with a local tramway company, is still able to pay $7\frac{1}{2}$ per cent. dividend on the capital involved in running its eight 'buses. With results such as these obtainable in seaside places where the traffic is a fluctuating one, and where for, at any rate, months in the year the return is problematical, the prospects of the motor 'bus in the Metropolis should appear decidedly rosy, as in fact they are proving themselves to be.

♦ ♦ ♦ Motor Car Accidents—Facts v. Fiction.

THE police of the Metropolis have furnished returns of the number of fatal accidents due to different varieties of conveyances existing in the Metropolis for the last eight years, ending 1903, and the data furnished are certainly instructive as regards the relative danger to the public of motor cars and horse-drawn vehicles. We take the year 1903, the latest of those for which a return is

furnished—a return for 1904 being beyond the capabilities of officialdom up to the present—as a fair sample, that being the year of the report in which motor cars came into most general use. In this year, fatal accidents due to motor cars in the Metropolis amounted to 4, those due to traction engines being only 1. Accidents produced by horse-drawn vehicles provide the serious total of 130, while tramcars are responsible for no less than 8, exactly double the number of fatal accidents due to the automobile. Comment on these figures would merely detract from their eloquence, and they certainly ought to have a reassuring effect on the mind of the public of the Metropolis and most other places.

♦ ♦ ♦ A Drastic Countermove.

As a practical protest against a recent decision of the Buxton magistrates, the committee of the Nottinghamshire A.C. have determined upon a course of action which may have consequences of a far-reaching character. At the petty sessional court on Saturday, in the face of a decided conflict of testimony, the justices imposed a fine of £5 and costs upon the chauffeur employed by Mr. John Hall, J.P., of Manor House, Ashby-de-la-Zouch, for driving a motor car to the danger of the public. Defendant swore he did not exceed eight miles, and Mr. Hall's belief was that they did not exceed seven. He offered to give the car to anyone who could drive it at eighteen miles an hour up the thoroughfare in which it was seen by the police witnesses. Notice of appeal was given—the licence not to be endorsed pending the result. Meanwhile the Notts Club has marked its sense of the matter in no unmistakable way. Under the auspices of the organisation of which Mr. Booth Granger is honorary secretary, it had been arranged to hold an inter-club meet on Saturday next at the Palace Hotel, Buxton, the latest addition to this health resort's many large establishments. The Leicestershire, Derby, Manchester, Lincolnshire, Sheffield, and Yorkshire Clubs had accepted invitations to join, and experience of a previous meeting warranted the anticipation that there would be an assembly of at least 150 cars, with probably an attendance of between 200 and 300 at the dinner, which it had been arranged to hold in the evening at the hotel. Now the decision has been arrived at to abandon the whole programme as far as Buxton is concerned, to mark the sense of the indignation felt in relation to the case referred to. The step taken by the Notts Club is calculated to serve as a useful object lesson of the possible loss which may be entailed upon a town by ill-considered decisions. Ashby-de-la-Zouch is to derive the benefits which should have been Buxton's, the venue of the inter-club meet on Saturday having now been changed to the former town.

♦ ♦ ♦ Main Road Traffic and Side Roads.

THERE is always a certain amount of danger involved where traffic debouches on main roads from by-roads, particularly when the latter meet the main road at a right angle. With a view to minimising these dangers, the following resolution has been adopted by the Irish Automobile Club, with Sir Horace Plunkett in the Chair:—

"This committee desire to emphasise in the very strongest manner, for the information of members, the fact that the driver of a car on the main road has a right of way prior to any car approaching on a by-road; that all main-road traffic has a prior right to

by-road traffic, and that the greatest necessity exists for members, when driving in a by-road and approaching a main road, to slow down, and use the utmost caution, and to give way, as far as possible, to the traffic on the main road."

We conclude that this resolution is to be understood in the light of a counsel, more or less of perfection, for unfortunately there is nothing in the Highway or other laws which can be legally interpreted to mean that main road traffic has any prior rights as compared with traffic running on by-roads. At the same time, it is to be hoped that all automobilists and all other users of the road will make a rule of, as far as possible, acting according to the spirit of this resolution. In fact the Automobile Club and the Considerate Drivers' League have been most industrious in impressing upon all drivers the necessity of caution at cross roads.



"(H)andover" Justice (?)—The proceedings of the Andover Bench and the monstrous prejudice that they evince in all automobile cases has elicited a strongly worded protest from a borough magistrate, who writes as follows:—

"As a magistrate, allow me to raise my protest against the most unjust method of prostituting the law in some courts with regard to motorists. When gentlemen are elevated to the Bench, they are expected to act with a spirit of fairness and impartiality towards all those who are brought before them, and not to treat anyone as a criminal until the evidence is such that there is no element of doubt in the case. After the strong expressions which have been reported from various magistrates anent motors and motorists, it appears that these people are not entitled to receive justice, and are far greater criminals than thieves, for these latter are allowed to defend themselves. In the case of motorists, neither the one summoned nor even counsel for his defence are given any fair hearing. It would be well if the Lord Chancellor would direct his attention to the case of these unjust dealers-out of the law, and bring them to realise that their methods require altering. In criminal cases, where the offence is proved to be the first, the prisoner is dealt with in such a manner that he feels that the Court is wishful to give him a chance of doing better. Not so in the case of motorists; they are all dealt with as hardened criminals, and nearly the maximum fine inflicted for a first offence. On the subject of fines, one wonders whether in those courts where this heavy system of fines has been adopted there has been a shortage of money from other criminal offences, and this deficiency has to be made good to fill their coffers by this legalised system of robbery, for it can be called by no other name."

THE police had quite a bad time of it at Mr. Hopkins's court one day last week. There were three several summonses against three several motorists, and all of them were dismissed, the defendant in one case only being called upon to pay the costs. They were all more or less frivolous cases. Mr. W. A. Barrington, of Walworth, was summoned for riding a motor cycle after dark without having the rear plate properly illuminated. He proved, however, that he had a light shining on it, and the magistrate said he saw a great many of these machines, but never saw one in which the plate was not properly lighted up. Mr. R. Coleby was summoned for not having informed the London County Council of a change of address. Mr. Hopkins remarked that he would not like to say that every motor car owner was obliged to send his change of address to the Council. If the police wanted to contend for that proposition they would have to do so, and he accordingly adjourned the summons *sine die*. In the other case, Mr. Charles Nicholls, of Worthing, was brought up at Lambeth Police Court, on the charge that he "did unlawfully allow the registration plate to become so obscured as not to be distinguishable." The charge was that the driver was wearing a macintosh, which reached down behind and obscured the plate. The defendant said he

was convinced that his coat did not cover the plate. Mr. Hopkins said the summons was a mere waste of time, *but* he told the defendant to pay the costs, amounting to 4s.

ANOTHER of the park cases was brought up recently before Mr. Marsham at Bow Street, in which Mr. Leopold de Rothschild was summoned for exceeding the 10-mile limit in one of the parks. The case was adjourned for the production of Mr. Rothschild's licence—in our opinion a wholly illegal proceeding. There is absolutely no reason why a motorist should produce his licence in a police court before conviction. The magistrate should decide the case on its merits, and only after conviction can he call upon the motorist to produce his licence for the purpose of endorsement. Even then he is not bound to produce it instantaneously, but merely *within a reasonable time*. Of course, the object of the police is to ascertain before conviction whether there have been any previous convictions endorsed on the licence. But that is wholly opposed to the principles of British jurisprudence, and it is a principle of common law that a man's previous convictions must not be adduced against him till his guilt is established, and then *only* for the purpose of deciding the measure of his punishment. Motorists ought to make a determined stand on this point, as it is altogether illegal. In this case, Mr. Marsham insisted upon endorsing the defendant's licence, in which, we fear, he was legally quite correct, though a number of magistrates have taken a more lenient view, and have refused to endorse mere offences against the "parks speed limit."

IN a case recently brought before magistrates at Morpeth, an automobilist was convicted for refusing to produce his licence to a police constable not in uniform. It was alleged in his defence that the law only intended that a motorist should be compelled to produce his licence to a police officer in uniform, and that as the police officer in this case was not in uniform no offence was committed. As a matter of fact this is a proper decision. If ordered to produce his licence by a person not in a police uniform, but who alleges that he is a policeman, a motorist should challenge the alleged police officer to produce his police identification card. If the officer produces this card then the automobilist is bound to show his licence, but if the disguised police officer fails to do this we submit that the motorist is not obliged to produce his licence.

The Licensing of Motor Omnibuses.—No mechanism seems to have been provided by the Act of 1903 for appeal from the decisions of local authorities who may, justifiably or otherwise, have refused to license heavy motor vehicles, under which heading of course the motor 'bus at present comes. The Society of Motor Omnibus Engineers has made a recommendation to the Motor Union that evidence on this important question should be laid before the Royal Commission on the Motor Car Acts. It is very doubtful wisdom to allow local bodies of the calibre of which we know them to be at present, to be not merely the first but also absolutely the last deciding authority on so important a question as that of vehicle registration or licensing. Some provision for appeal from the decisions of the local authorities ought certainly to be provided, and it is to be hoped that the Motor Union will press this point of view upon the Royal Commission.

OUR CANALS AND MOTOR BOATING.

(Continued.)

OUR CANALS.—An old bridge over the Basingstoke Canal near Aldershot.

THERE are other considerations. One of the features of the upper Thames which makes it such an agreeable waterway for pleasure purposes is the provision of hotels and restaurants at convenient points. Of conveniences of this kind the Basingstoke Canal is practically destitute, though there are hotels at several points near to it, whose presence no one travelling along it would suspect. Extensions of these establishments on the edge of the canal might possibly be arranged for, and others should certainly be organised. Without places at which tourists can conveniently and comfortably stop for a longer or shorter period and obtain what they want, pleasure-boat traffic will never be a success, but with such arrangements it may almost be guaranteed. It may be taken for granted that the owner of the canal will not be able to satisfactorily rely upon either project alone. Both a regular service of motor boats and the income to be derived from the use of the canal by pleasure-boats must be looked to to recoup expenditure. As regards the

latter the present large number of locks, for passing each of which a charge of 1s. is made, is a very serious bar.

Reducing the number of locks, as we suggest, will probably do something to remove this obstacle, but probably it will be found necessary to reduce the charges. If this is done and profit relied upon rather by the custom which motor-boating tourists will bring to canal-side hotels and restaurants, the scheme might, in all probability, be made thoroughly satisfactory. It is to be hoped that success will crown Mr. Carter's efforts. That this picturesque and beautiful waterway, running through some seventy miles of exquisite country, mostly wooded, should not be opened to a greater extent than it has been to public enjoyment is a misfortune. That it should be found necessary to abandon it altogether would be a disaster, but with a moderate expenditure of capital on the proper lines we trust that any such disaster may be effectively avoided.



We are glad to see that the prospect of goods transport by automobile, which has proved so successful in the near neighbourhood of London, is spreading to more distant counties, and that the Agricultural Organisation Society is considering the feasibility of arranging motor services which will link up remote districts in Lincolnshire, Gloucestershire, Devonshire, and other counties with the railways.

We regret greatly to hear that Mr. Alfred Bird, the prospective Unionist candidate for Wednesbury, and who is so prominently connected with the Automobile Club, met with a rather serious cycle accident on Saturday last. Following the collision with a cyclist, Mr. Bird was thrown on to his head, and badly disfigured his face. We are glad to learn, however, that Mr. Bird is now progressing satisfactorily.

THE TOURIST TROPHY RACE.

Photo by G. B. Cowen, Ramsey.

TOURIST TROPHY RACE.—Port Erin, one of the most popular seaside spots in Manxland.

By the time this issue is in the hands of our readers the Tourist Trophy Race will have been run and won, and people will be forming particular opinions on the event itself and its merits as the possible "blue riband" contest of the future.

No one imagined that the race this year would be likely to prove an ideal event from every point of view; the difficulties of carrying any motoring event to a successful issue are great, but those which stand in the way of instituting an entirely new type of race meeting are infinitely greater. This fact should be borne in mind when criticising the race from the point of view of a

popular event, and also possibly when considering the results which have been obtained from it.

It was only a few days before the event that the club made public their decision that the actual starting line would not be actually at Quarter Bridge but in Alexander Drive, opposite the Woodlands. At the same time it was announced that the winning post would be placed just past the corner of Selborne Road and Quarter Bridge Road. Both starting and finishing points were well chosen. Alexander Drive abuts on the course, and the actual starting point for the cars was, therefore, in such a position that the congestion which always occurs

Photos by G. B. Cowen, Ramsey.

Port Soderick, near Douglas.

Douglas Head and Lighthouse.

TOURIST TROPHY RACE.—Two well-known spots on the Island.

TOURIST TROPHY RACE.—Mr. S. Girling on the 18-h.p. Siddeley Car. This is the same vehicle which took part in the famous "Siddeley-Meyan" Tour, and it has already covered about 43,000 miles.

in its vicinity did not in any way interfere with the competitors once they were under way. With nearly fifty cars to send off this is an important consideration, if the circuit is so short that the first car might easily be round again almost before the last has been despatched. The merits of the position chosen for the winning post lay in the fact that it was on an up-gradient, and cars had, therefore, to finish under their own power, a fact which neutralised any advantage being taken of the final run down the mountain road, since any cars which arrived at the bottom empty would be unable to finish the race.

TOURIST TROPHY RACE.—View from above of the 18-h.p. Siddeley Chassis. A feature of the engines on these well-known cars is the variable-lift device fitted to the inlet-valves.

In other respects, too, the arrangements were very thoroughly conceived.

Practice runs were made by many of the competitors prior to the event, but the weather on the whole was not calculated to enable the drivers to really know the course thoroughly or the capabilities of their car for running on a fine dry day. Mr. E. H. Arnott, on his Minerva, had established a reputation for making a series of very fast runs on a reasonably low petrol consumption, while the Rolls-Royce, Arrol-Johnston, and Rover cars were also to the front in this respect.

It was not altogether surprising that one or two accidents happened during these practice spins, for even these comparatively small cars are capable of considerable speed. The most serious smash-up was that of a non-competing Simms car when rounding a curve near Kappel Gate. In a similar way, Mr. De Wilton's Swift was brought to the ground

at another point on the course, but by the enterprise and energy of Mr. Harvey du Cros, it was thoroughly repaired in two days, although very badly damaged in the smash. Another piece of quick work was the building of a new Scout car by Messrs. Dean and Burden, whose original T. T. vehicle met with an accident in Wiltshire, as we recorded last week.

Sunday was the last day on which cars could be taken over the course. A certain religious portion of the population held a meeting of protest that same evening, at which they denounced *reckless Sunday* motoring.

The emphasis was apparently on the *reckless*, but we rather think that the adverse criticism was called forth by *Sunday* motoring as an offence against principles. Otherwise we hardly appreciate the subtle distinction which the Sabbath is made to confer on *reckless* driving, which on holy days or otherwise, is to be sternly condemned.

TOURIST TROPHY RACE.—The Simms-Welbeck Car, before the event, starting from Quarter Bridge for a trial spin.

TOURIST TROPHY RACE.—The two Argyll Cars, which are of the live-axle type, and have four-cylinder engines. Three changes of speed are provided, the change-speed-gear and its three-way "quadrant" being one of the special features of these well-known vehicles.

The Results of Our Road Trials.

(Continued from page 1118.)

IN our last issue we published, in tabular form, the fuel consumption figures showing, amongst other things, the effect of speed on the quantity of petrol consumed by some of the best known types of petrol car. We now propose to turn our attention to the individual records obtained from each vehicle, mentioning such special characteristics as should be borne in mind when considering the figures, and referring specifically to the precise conditions that prevailed at the time.

The exact nature of these tests, which were carried out by our own technical staff, has already been stated, in the first portion of this article, last week.

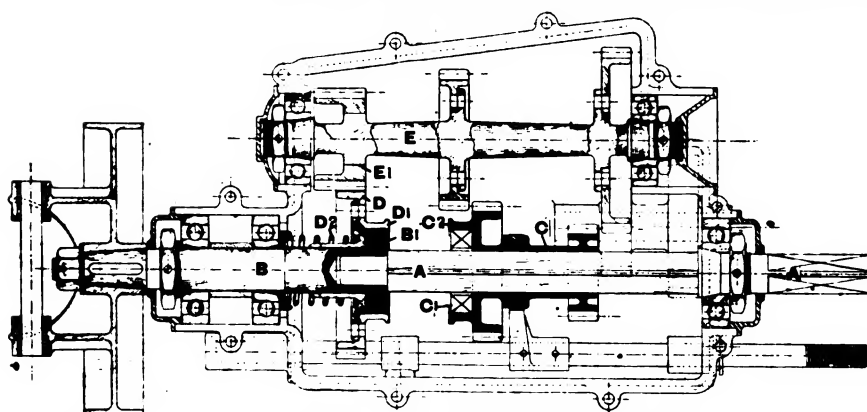
TOURIST TROPHY RACE.—The 16-h.p. Arrol-Johnston car. This vehicle is a most striking departure from the standard "dog-carts," which have for so many years been associated with this firm. The balanced, horizontal engine, however, is of similar design, although differently arranged in the frame, and a propeller-shaft drive to the live rear-axle has been adopted.

The 14-h.p. Wolseley.

On this twin-cylinder car, the horizontal engine was controlled by a hand throttle-valve, by which the richness of the mixture is automatically maintained more or less constant to suit the load. The carburettor and throttle-valve, which are in this case of the latest Wolseley pattern, must necessarily on any car be largely responsible for the nature of the fuel consumption figures; on their adjustment, moreover, depends to a great extent the fuel efficiency at different speeds and different loads. On the level course, even when the fourth gear was in use, the

TOURIST TROPHY RACE.—The Arrol-Johnston chassis, which is principally remarkable for its peculiar horizontal engine. Each of the two cylinders—which lie transversely in the frame—have a pair of independent pistons which operate the longitudinal crank-shaft, lying immediately below the cylinders, by means of rock-levers. Hitherto these engines have been associated with the well-known Arrol-Johnston "dog-cart," of which a description appeared in our issue of April 4th, 1903.

TOURIST TROPHY RACE.—The two 14-h.p. Dennis Cars. Although identical in power, one of these vehicles has a two and the other a four-cylinder engine. Both cars are peculiar for their worm-driven live-axle—the special feature of all Dennis vehicles.



TOURIST TROPHY RACE.—The Dennis change-speed-gear, the special feature of which is the automatic disengagement of the lay-shaft at the same time that the "direct" through-drive is introduced. The direct-drive is obtained by sliding the member, C, on the driving-shaft, A, so that the jaws, C¹, engage with the corresponding jaws, B¹, on the driven member, B. Normally, however, the jaws, B¹, are engaged with corresponding jaws on the wheel, D, which is driven through the wheel, E¹, by the lay shaft, E, and it is only by sliding back the wheel, D, that the jaws, B, are free to engage with those on the sliding member, C, in order to give the top gear. This sliding of the wheel, D, is accomplished by the contact between the two smooth faces, D¹ and C², on the respective sliding members, and the re-engagement of the wheel, D, with the driven member, B (when the gear is changed down again), is provided for by the spring, D².

hand-controlled throttle-valve was more or less closed during each run, and therefore the full efficiency of the engine could not be made use of during either run. Nevertheless, it will be seen that on the fourth gear the fuel consumption was lowest at the lowest speed (14.6 m.p.h.), and that only 23.3 miles per gallon, as against 32.6 miles per gallon, were made when the speed was increased to 22.7 m.p.h. As might be expected, even more petrol per mile was consumed on the third, and still more on the second gear, while the consumption rate per *hour* followed more or less closely the engine speed. A very interesting result is that an improvement, amounting to nearly two miles per gallon, was effected in the final "level" test, although a slightly higher average speed was made, and the engine was working above its "best"

speed. This was due to opening up the throttle-valve wide for short periods of time, and then almost closing it to allow the speed to decrease. This "jerky" method of driving obviously improved the average efficiency, which may be accounted for by the fact that when the engine was working at all it was taking in full charges of mixture, and was not running continuously with a partly closed valve, as before.

On the hilly course, the first two tests, curiously enough, showed up in favour of running on the second, as against the third, speed, although the engine made nearly 50 per cent. more revolutions during approximately the same time. One sees, therefore, that, at such a low engine speed as was maintained when the higher

TOURIST TROPHY RACE.—View of the 14-h.p. Vinot-Deguingand Car, which has a four-cylinder engine, and is driven by side chains. A peculiar feature on this car is the change-speed lever, the trigger on which is used for locking the lever to either one of the two rock-shafts which operate the sliding members in the gear-box.

TOURIST TROPHY RACE.—The 16-h.p. Humber car, fitted with a well-designed side entrance body.

gear was used, the loss of efficiency from this cause more than cancelled the gain due to increased load. In the next two tests—in which the relative merits of running at about 20 m.p.h. on the third, and on the fourth gears, respectively, is shown—not only is a further anomaly at first apparent, since, even then, the fuel consumption is higher than in the second run, but the fourth gear fulfils expectations by being much more economical than the third gear. The third gear would seem, in this case, to be uneconomical because the speed is unduly high in view of the partly closed throttle-valve, for apparently—as will be shown by our engine tests presently—not only is the efficiency of an engine always impaired by throttling, but if the throttle-valve is partly closed, the effi-

TOURIST TROPHY RACE.—View from above of the 16-h.p. Humber chassis, which is of the live-axle type and has a four-cylinder engine. The peculiar one-armed steering-wheel, prominent in this illustration, is a feature of all Humber vehicles.

fact is that the revs. per min. are deceptive, because the actual speed was varied over a very wide range, and at times a high, and therefore very wasteful, rate of travel was attained to compensate for the frequent slackening around corners, and the comparatively slow speed up the steepest gradients.

The 6-h.p. Wolseley.

With the smaller Wolseley car, which has a single cylinder of the same size as those on the 14-h.p. vehicle, trial runs on the level course were only made on the top gear (the third speed), and the results obtained will show how important it is, from a fuel consumption point of view, not to attempt to travel too fast. The normal speed is 800 revs. per min., and, with this car, a greater proportional load was naturally imposed on the engine. At 930 and 950 revs. per min. the drop in mileage per gallon was, it will be seen, no less than 8 miles, or, in other words, twenty per cent. less. Probably the reason why the consumption per mile is the same at 15 m.p.h. as at 19½ m.p.h. is that the reduction of wind-resistance about compensated for the

TOURIST TROPHY RACE.—Mr. Guy Lewin on the 10-h.p. Peugeot, which is one of the least powerful of the competitors. It has a twin-cylinder engine and is driven by side chains; four changes of speed are provided. "Shock-dampers" are fitted.

less economical (below normal) engine-speed.

On the hilly course, the results confirm the same conclusions that are deducible from the 14-h.p. car tests, and it only need be pointed out therefore that the third gear at $15\frac{1}{2}$ m.p.h. is more economical than the second gear at $16\frac{1}{4}$ m.p.h., because the total number of revolutions are greatly less. In neither case, however, is the efficiency as high as it would be at normal engine-speed. In spite of the greater wind-resistance at 20 m.p.h., the result obtained in the final run is distinctly better, the average engine-speed having been 820 revs. per min., as against 625 and 980 respectively.

The 15-h.p. Napier.

On this car, two methods were available for regulating the power and speed of the engine. Usually the

TOURIST TROPHY RACE.—Mr. E. W. Lewis on the 16-h.p. Rover car. In general design, this vehicle—first introduced to the public at the Brighton Meeting—follows the lines of the small two-seater, which has already become so well known.

The mileage per gallon fell from 27.2 to 21.8. No intermediate speeds between 23.75 and 29.75 were tested, but these two results show how rapidly the economy per mile is adversely affected by fast travelling.

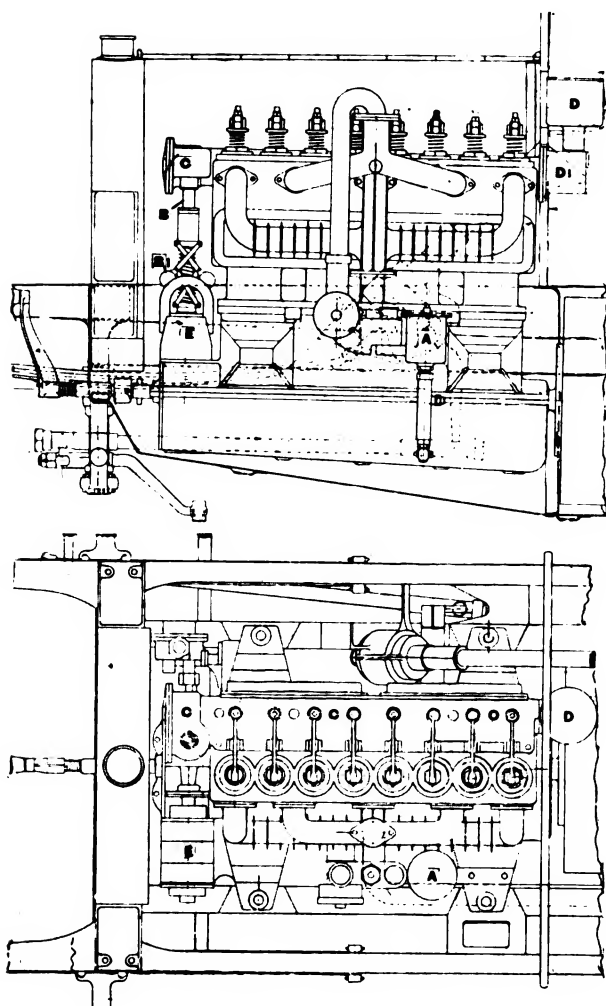
The first two tests on the hilly course indicate the difference in fuel consumption resulting from maintaining a steady speed of 17 m.p.h. by the hand throttle, and of 20 m.p.h. by the clutch and governor; in the first case about 10 per cent. less petrol was required per mile. Finally, in the series of three, it was shown that an equivalent further gain resulted from employing the

TOURIST TROPHY RACE.—The 16-h.p. Rover chassis, which has a four-cylinder engine and a live-axle. The 3-speed gear-box and the crank-chamber are combined, and are fixed at three points to the frame. The steering mechanism is one of the most peculiar features on the chassis, wire cords wound over a drum being employed instead of the usual gear.

governor was allowed to come into play for the purpose, and it is set so that it gives what may almost be termed a "hit-and-miss" action on its throttle-valve as soon as a speed of 800 revs. per min. has been reached. The governor could, however, be completely cut out by depressing a pedal, and a hand throttle-valve, which—unlike the other throttle—tends to maintain a constant richness of mixture, formed the second means of control. The normal speed of this engine was 1,200 revs. per min., and the maximum useful speed may be taken as 1,600 revs. per min.

On the level course, the first two tests were made in order to ascertain how much extra fuel would be consumed by driving the car "on the clutch," as against letting the governor "cut in" and "cut out" as it pleased—i.e., leaving the clutch in continuously.

TOURIST TROPHY RACE.—One of the Minerva cars, which have four cylinders and are chain-driven. A feature of these vehicles is that although four speeds are provided, the direct drive to the differential countershaft is on the third speed.



TOURIST TROPHY RACE.—Elevation and plan of the new 14-h.p. Thornycroft Engine, fixed in place on the chassis. All the valves are arranged above the cylinders, and the cam-shaft lies in the casing, C, alongside the cylinder-heads, being driven by a bevel-wheel from the vertical shaft, B, which carries the automatic governor, B'. The commutator, D, is driven from the cam-shaft by means of the bevel-wheels contained in the case, D'. The carburetor, A, and the low-tension magneto, E, are also shown in the drawing, although the very neat tappet mechanism, which enables either valve to be removed easily, and is operated from the cam-shaft, is not visible.

fourth gear instead; the speed of the car was then slightly greater, but the advantage of imposing a heavier load on the engine more than compensated for this.

The 15-h.p. De Dion.

On this car, the high-speed engine was controlled in most tests by the exhaust-gas-retaining device employed on all De Dion vehicles, but during one run the hand-operated throttle-valve was used instead. The two performances on the level course show the advantages that are obtained by working at full load and at normal engine speed, for it will be observed that although the car

was travelling fast during the second run—and the wind-resistance was therefore considerable—the amount of fuel consumed was reduced by over twenty per cent.

The first three tests on the hilly course were made at practically the same speed, and they therefore serve to indicate two main things. Firstly, it is seen that no material difference was made by using the hand-throttle in lieu of the foot control on the exhaust, so that apparently the automatic maintenance of an approximate constant richness (in the former method) compensated for the decreased compression in the cylinders. Secondly, the gain resulting from the reduced total number of revolutions, and from working at a more moderate speed, is very marked when the third speed was brought into use instead of the second. The fourth run emphasises the merits of full-load working, since the same quantity of petrol served to cover the distance at an appreciably higher rate of travel.

The 6-h.p. De Dion.

The characteristics of a car fitted with a single cylinder engine that has a very high normal speed are brought out very strongly in that portion of our table which refers to this car. On the level course, the economy was equally good at 14 m.p.h. and at 25 m.p.h., but was not nearly so high at the two intermediate speeds. The explanation probably is that the full load in the last run more than compensated for the more moderate engine speeds in the second and third runs, while, during the first trip, the comparatively low engine speed and the exceptionally light load had an equivalent effect. A good deal more light is thrown on this series of trials by the tests made by us with a similar kind of engine on the bench; these go to prove that the rate of fuel consumption per *hour* is very much lower both at low and at very high speeds than it is at intermediate speeds.

On the hilly course, the two runs were made at about the same speed, but in the one case the second gear was used, and in the other case the third gear. The employment of the latter proves to be, as anticipated, a considerably more economical method of driving.

The Cadillac Cars.

Two separate cars, differently "geared," were employed. The inlet-valve of the Cadillac engine is "set" in an unique manner.

Photo by Argent Archer.

TOURIST TROPHY.—The two Thornycrofts filling up for a test run.

A view of the course at St. Jude's, Andreas.

The sharp bend in the road near Ramsey.

TOURIST TROPHY RACE.

The power and speed are controlled by varying its "lift"—opening it earlier and later, and at the same time closing it later or earlier—but the usual feature is that, at full load, the valve does not close until the piston has proceeded some little way on its "compression" stroke. The effects are most interesting, but it is only the practical results, as shown by the performance of the car, that we can enter into here.

TOURIST TROPHY RACE.—Mr. A. Rawlinson on one of the 10-h.p. Darracq cars, which have twin-cylinder engines and live-axles.

With the lower-gear car on the level course, it is seen that the same efficiency per mile is maintained on the high gear so long as the normal engine speed is not exceeded, but that at higher speeds more fuel is consumed.

The same thing is also borne out by the tests made with the other car, though the all-round efficiency is even then better, and although the mean engine speed

TOURIST TROPHY RACE.—Views, from both sides, of the 10-h.p. Darracq engine, that on the left is taken from the exhaust-valve side, and that on the right shows the mechanically-operated inlet-valves in the cylinder heads.

A fine stretch at Ballamona on the Ballaugh to Sandygate Road.

On Barrule Mountain, near Snaefell.

Photos by G. B. Cowen, Ramsey.

TOURIST TROPHY RACE.

on this second occasion never exceeded 973 revs. per min., as against 1,220 revs. per min. before. Only one test on the hilly course is recorded in the table, this

giving a direct idea of the effect produced by the altered nature of the route, since it is otherwise comparable with the second run on the level.

(To be continued.)



SCIENTIFIC GOGGLES.

IN the last Gordon-Bennett Race the dust was almost phenomenal, in fact it was so bad that Earp especially, among the English team, could hardly see at all during the latter part of the race on account of the quantity which had found its way into his eyes. In striking contrast was the immunity of the French and Italian drivers, who were observed to be wearing small close-fitting glasses of an unknown type, which apparently made an hermetic joint around the eyes, and yet never clouded with mist because of the specially arranged little pipes which conducted the air to and from the interior of each monocule without admitting dust at the same time.

carefully shaped, so that their curvature conforms to the average anatomy of the face in the region of the eye; differences in detail being compensated for by the soft rubber edging which is sewn to the frame to prevent its direct contact with the face. Detachable ground-glass lenses are fixed in front, and either clear or tinted glasses may be inserted as required. The bridge, B, joining the two frames is made adjustable and, being mounted on ball and socket joints, B', perfect freedom is ensured for the two virtually independent halves.

Ventilation is provided by the two rearwardly projecting pipes, A and A', the former passing through the frame and along towards the centre, where it delivers its supply of fresh cool air, the latter stopping short just inside the frame for the purpose of drawing off all the warm air from the interior. We have recently taken an opportunity of testing these goggles during dusty weather, and the protection which they afford against the annoying and painful ingress of solid particles is undoubted. They are very easily adjusted, but it is necessary that they be adjusted exactly, for otherwise there is a risk that they may be neither dust-tight nor really comfortable. Many motorists who wear glasses for defective vision find a difficulty in obtaining suitable goggles to wear with them, and it is interesting to note that the Mirovitch goggles can be fitted with special lenses, which the manufacturers undertake to produce as an exact equivalent of those usually worn in *pince-nez* or spectacles.

MIROVITCH GOGGLES.—Views of the new goggles from the front and from behind, showing the ventilating pipes, A and A', by which the air is kept in circulation without admitting the dust.

These new goggles are the invention of Dr. Mirovitch, and the sole agent for them in this country is Captain W. H. Bennett, of Dixi Motors, Limited. Our photographs show two views of the goggles—from the front and behind respectively. The frames are of aluminium,

ONCE upon a time it would have been regarded as a proof of much enlightenment for a Chinaman to desire to marry a European. Such a marriage at the present day has to be conducted "en automobile" to attract attention, and this was the case with the wedding of Mr. Sci Ton Fa, of the Middle Empire—he has married a French lady—and he drove to church in Paris in a motor car to have the fatal—we mean festal—ceremony performed. When Mr. Sci Ton Fa was "spliced" the music should have been provided by a Tonic Sol Fa choir, but we do not know whether this was so or not!

THE ALBION LUBRICATOR.

So much public attention is being drawn at the present time to the "smoke nuisance," caused by improper lubrication of motor car engines, that inventions relating to lubricators, designed to relieve the driver of anxiety as to the condition of his exhaust, now assume additional importance to the motorist. In this respect lubricators in which the oil-feed is dependent upon the action of a pump are receiving increasing favour, and several of the best known cars are now fitted with lubricating devices of this type, among them being the Albion, the mechanical lubricator on which car has been designed by Mr. T. Blackwood Murray.

In a very ingenious manner Mr. Murray has made a multiple-feed lubricator of this type, which occupies a very small space and is operated by remarkably simple mechanism. To ensure satisfaction in a device of this kind it is desirable that the oil supply to each pipe should be delivered positively and independently, so that the pressure may be rendered as effective as possible in causing proper circulation even in the event of slight obstructions, and that the amount of oil which

circle so that they may be supplied with oil from a single pump, which is constructed to travel over a corresponding circular path and deliver its charge as it comes over the end of each pipe; a fresh supply of oil—the quantity of which may be regulated at will—being automatically drawn out of the reservoir, as the pump passes across the intervening space between any two adjacent pipes. The motion of the pump in its circular path is controlled by a ratchet device operated from the engine, but a handle is also fitted by which the driver can operate the pump at such times as he may consider that an extra supply of oil is temporarily necessary.

Passing through the centre of the reservoir is a spindle, D—on the upper part of which is the handle, D¹, for temporarily working the pump by hand—which forms an axis about which the plate, F, carrying pump, E, revolves. The pump cylinder is solid with the plate, F, which is keyed to the spindle, D, and the plate is provided with ratchet teeth on its periphery to enable it to be rotated by a pawl, G¹, which is operated by means of suitable mechanism, G, from the engine. Fixed to the bottom of the re-

Fig. 1.—The Albion Lubricator. View of the apparatus complete.

Fig. 2.—The Albion Lubricator. Views of the pump mechanism and the interior of the reservoir.

Fig. 3.—The Albion Lubricator. Views of some principal component parts of the mechanism.

is so delivered should be readily controllable without interfering with the supply to each other pipe in the system. These are features of the new Albion lubricator of which we give several illustrations. In Fig. 1 the lubricator is shown complete, in Fig. 2 the cover with part of the mechanism has been removed intact from the reservoir which is seen beneath it, and Fig. 3 gives views of the more important details in the construction. Fig. 4 is a sectional elevation, showing the relative arrangement of the parts, and Fig. 5 indicates diagrammatically the action of the pump during the suction and delivery strokes.

In the lubricator from which our illustrations were taken there are six separate oil pipes, B, leading from the reservoir, A, and they are arranged in the form of a

reservoir, A, is a plate, B¹, into which all the oil-pipes, B, are screwed from beneath, and it is so constructed that between each two adjacent holes, B³—which communicate with the oil-pipes—there is another hole, B², communicating with the reservoir, all the holes being drilled on the same "pitch circle." Against the upper face of this plate, B¹, the lower face of the plate, F, is held, by means of the spring, F¹, so that they form an oil-tight joint. The pump-cylinder, E, is not fitted with any valves, and oil can only enter it when its lower end, which is quite open, comes opposite one of the holes, B², communicating with the reservoir, after which the supply is automatically cut off by the movement of the plate, F. The pump thus

carries its charge until the cylinder comes over the next hole in the plate, B', through which the oil is delivered to one of the pipes, B.

The reciprocating motion of the pump plunger, E', is accomplished in an ingenious and yet very simple manner. Attached to the inner face of the reservoir cover, A', are a series of conical cams, C, and flat stops,

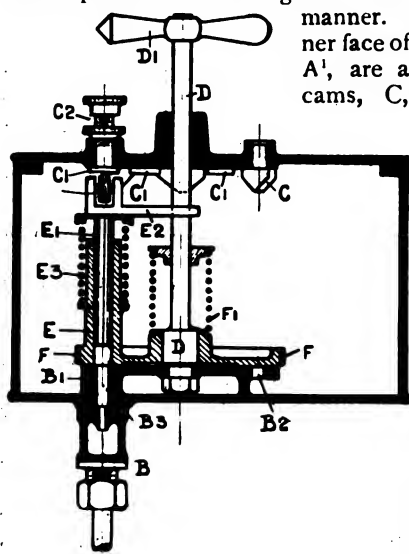


Fig. 4.—The Albion Lubricator. Sectional elevation showing the arrangement of the pump inside the reservoir.

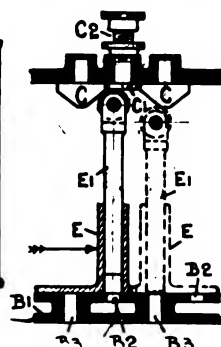


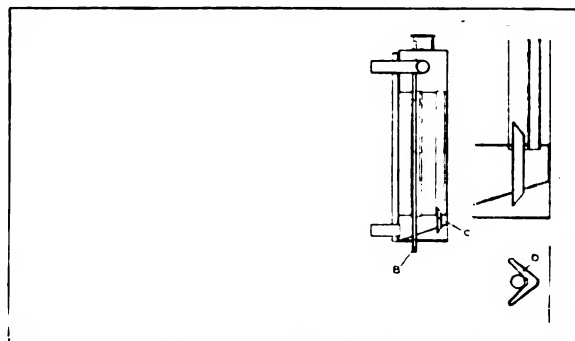
Fig. 5.—The Albion Lubricator. Diagram illustrating the manner in which the plunger receives its reciprocating motion from the cams, C, as the pump is carried bodily forward.



THE BURTON RADIATOR.

The Burton Radiator, showing its general appearance, and the auxiliary air-pipes which honeycomb the lower water chamber.

ALTHOUGH of the water-tube type, the Burton radiator differs considerably from others of this class. It has, it will be noticed from our illustrations, no radiating gills on the tubes, and the tubes themselves are angular in section. The object of making the tubes in this way is to reduce the water space relatively to the cooling surface as much as possible, and the makers have considered it advisable to adopt an angular section instead of the more usual flattened tube. Only the front of the tubes are thus in direct contact with the moving air, but an additional draught is directed upon the rear faces of the tubes by honeycombing the lower water-chamber with small pipes, C (Fig. 3), each of which leads the air, collected by a "scoop" below the radiator, to the angular space behind each water-tube. The arrangement of these short pipes is well shown in one of our illustrations, and it will be noticed that they have the additional advantage of converting the lower water-chamber itself into a small honeycomb radiator.



Elevation, sectional plan, and details of the Burton Radiator. A, delivery pipe; B, overflow pipe; C, auxiliary air-pipe; D, water tubes.

THE MANOGRAPH—ITS UTILITY AND CONSTRUCTION.—PART I.

It is little short of a miracle that the modern petrol engine works at all, for it is surely almost inconceivable that each of the four strokes constituting the complete cycle of operations can be performed in less than one-fortieth part of a second—acting perfectly thirty-six thousand times hour after hour—particularly when one considers that a flame fills the cylinder during the exhaust-strokes, and that its place is taken by an unignited explosive mixture *immediately* afterwards. That this fact is far from being appreciated by the average owner of a petrol car, and probably by not a few manufacturers as well, may indeed be, and in fact is, an eloquent testimonial to the extraordinary success of such engines in practice, but, further than this, it suggests an ample explanation as to why some engines work very much better at one time than at another, and why some engines give very much better results than others of the same size. When one attempts to consider what is actually taking place in an engine, when running at about this speed (1,200 r.p.m.), one cannot but realise that it requires something more than a minute inspection of the mechanical

Fig. 1.—View of the Manograph mounted on its tripod, with the ground-glass screen, A, partly withdrawn. The pipe, B, communicates with the combustion-chamber of the engine, the flexible-shaft, C, transmits the motion of the crank-shaft to the instrument, and the rubber pipe, E, leads the acetylene gas to the lamp.

parts—coupled with the exercise of a vigorous imagination—in order to ascertain how to secure the best results from it. There are such a large number of complicated calculations involved in attempting to determine, by theory, the correct dimensions, and “set,” of each and every part, that, even if all the necessary data were to hand—and they are not—it would be far from easy to avoid making some serious mistakes. Everything occurs in such an extremely short period of time, temperatures and pressures vary over such an extremely wide range, and many of the functions are of such a very complex character, that, even if the engine were intended always to run at one constant speed, the correct “setting” of the valves, and adjustment of the carburettor—to say nothing of the other hundred and one minor matters—would be but little more than guesswork, unless some direct means were available for ascertaining what was actually taking place inside the cylinder. To a certain extent, it is possible—on the principle of “trial and error”—to gradually obtain such data by experiment, and fortunately there is usually no lack of visible or audible

symptoms which are fairly easy to diagnose. Unless, however, some accurate records are available from which can be seen, separately, what has happened during each part of the cycle of operations, it would be impossible to know whether a further improvement might reasonably be expected or not, and one could not expect to take full advantage of such comparative data as would otherwise be available from other engines. It is, at any rate, obvious that the surest means of obtaining the best results from any petrol engine, or of ascertaining the cause of any faulty action that may have arisen, is to obtain some mechanical record that will show precisely what has been occurring inside the cylinder when the engine is running, or, in other words, to obtain a set of indicator diagrams from it. Unfortunately, until comparatively recently, there has been no satisfactory instrument for enabling accurate diagrams to be obtained from engines running at such high speeds, for not unnaturally it has been found extremely difficult to construct an indicator which will give reliable diagrams from a modern petrol engine. Indicators in the past, however, delicately they may have been made,

have had certain moving parts which have been too heavy to act properly at such speeds, both because their inertia has prevented them from getting under way sufficiently quickly, and because their momentum has caused them to travel unduly far. The result has been that all attempts to use these instruments have resulted merely in obtaining distorted and misleading diagrams.

The Carpentier-Hospitalier manograph is an apparatus of an entirely different kind, although it gives precisely the same type of diagram. In it, the previous difficulties have been almost entirely overcome, not only by making the moving parts extremely light but also by reducing their range of travel considerably. There is no pencil of any kind for drawing the diagram, and there is no paper which has to be moved beneath the pencil, while a still further difference between it and ordinary indicators is that a diaphragm replaces the customary piston and its small cylinder. Instead of the pencil, a beam of light is made use of; instead of the paper, there is a ground

glass screen, or a photographic plate; the beam of light is obtained from a stationary lamp, that forms a part of the apparatus; and the screen on which the diagram is projected does not move. All these obvious advantages are obtained by the simple expedient of using a small circular, convex mirror, which is little more than half-an-inch in diameter, and merely serves the duty of reflecting the beam of light on to the screen. The mirror, or reflector, is pivoted in such a way that it can be tipped sideways by one portion of the mechanism, and can be tipped in an upward and downward direction by another portion, the mirror normally lying in a vertical position in the instrument, and its centre remaining practically a fixed point. The mechanism that tips it sideways is driven from the crank-shaft of the engine by a flexible shaft, and is so arranged that the horizontal line which it causes the beam of light to traverse, across the screen, corresponds with the forward and backward movements of the piston in the engine-cylinder; the beam of light thus keeps time with the piston in just the same way that the paper does beneath the pencil in an ordinary indicator.

The other mechanism, which rocks the mirror about its centre in a direction at right angles to this, is operated by the pressure in the combustion-chamber, and is for this purpose connected with the engine by a pipe; it causes the mirror to move the beam of light over a vertical path up and down the screen, and, therefore, the vertical position of the beam on the screen corresponds with the pressure in the cylinder, in just the same way that the vertical position of the pencil does in other indicators. It will, of course, be understood that the mirror can be tipped in both directions simultaneously, and that the beam of light can, therefore, "draw" a diagram of the usual type upon the screen.

When the engine is running sufficiently fast, the complete diagram is "drawn" so quickly that the whole of

it is rendered visible to the eye on the ground-glass screen, and the retina receives a complete image—the diagram standing out as though formed by lines of light. It is then possible to watch all changes that may be taking place, actually at the time, inside the cylinder, though obviously, in this case, there is no permanent record produced, and it is necessary to rely on memory for results. Permanent records can, however, be obtained by substituting a photographic plate for the ground-glass, this plate being, of course, subsequently developed as an ordinary negative. The same photographic process is also employed when the speed of the engine is insufficiently great to permit of the other method being adopted. Before passing on to describe the construction of this very beautiful instrument (for which Messrs. Van Raden and Co., of Coventry, are the English agents), it might be as well to draw attention to the fact that the diagrams produced by it are primarily intended for enabling the internal action of an engine to be seen, and that they are not so well suited for calculating the horse-power that is being developed. We mention this because it may not, at first, be evident to those taking

an interest in this subject that the very nature of the mechanism almost renders absolute accuracy impossible, so far as "scale" is concerned. It would, for instance, be necessary to alter the construction slightly for engines that have connecting-rods of greater or less length. The great point, however, is that the diagrams obtained are accurate so far as "phase" is concerned, *i.e.*, that they show what the precise nature of the changes of pressure are inside the engine, and what the precise moments are at which such changes take place. But this, after all, is really the important function of any indicator for such work, and it therefore matters not that additional labour would be required from those wishing to calculate "indicated horse-power" from the diagrams.

(To be continued.)

Fig. 2.—Four views of that portion of the Manograph which contains the moving parts, dismantled to show the interior mechanism. To the left at the top, it is seen from the front, with the diaphragm, B², and the adjustment screw, C¹², lying alongside; to the right, it is shown from the back, with the mirror, D, in full view, and with the union plug, B¹, beneath; in the lower left-hand corner, a view is obtained from above, with the cover plate taken off; and in the right-hand corner, an underneath view is given.

In the centre, at the bottom, is the prism, E².

REVIEWS OF BOOKS.

"Ellan Vannin. Ballads and Verses of the Isle of Man."

By HARROLD JOHNSON.

(London: Watts and Co. Douglas: Broadbent and Co. 1s. net.)

THE Isle of Man is to some extent becoming the Mecca of motorists, so, as these poems are largely vignettes of Manx life and scenery, the automobile movement may be expected to benefit their sale. There are those at any rate who will be glad to supplement their photographs or views of the island by vignettes in words of its scenery, life, and people, and it is these that Mr. Harrold Johnson has set out to supply—often very successfully. He has the true poet's insight and feeling, and as we read his verses we are irresistibly reminded here and there, at times of Tennyson's "Miller's Daughter" and at times of Burns. As yet he has not that full command of rhyme and rhythm without which the deepest poetical feeling and insight are, after all, but like the "Harp on Tara's Walls." The last poem but one in the book, however, "Ellan Vannin," has the true lyric "lilt" and swing, and leads one to hope for good things from the author in the future. Beethoven at the end of his life said to Moscheles, "I have not studied enough." The poet needs to study as much as the musician if his inspiration is to become really articulate. *Verb. sap. sat*

My Friend the Chauffeur.

By C. N. and A. M. WILLIAMSON.

(London: Methuen and Co. 6s.)

IF we alter Byron's epigram—"God provides the widows and fatherless with fools"—into "God provides impecunious British aristocrats with American heiresses," it would form a suitable motto for this book. Lord Terence Barrymore, heir to a marquise in the peerage of Ireland, and incidentally owner of a 12-h.p. Panhard, has run through all his money, and his friend, Sir Ralph Moray, determines to help him out of his difficulties by inducing him to take a party of American ladies touring through Europe, at a very comfortable remuneration to himself. This position forms the plot of "My Friend the Chauffeur," and its development can be imagined. The mechanism and movement of the story is somewhat interfered with by its sub-divisions into five parts, told respectively by the three American ladies on the tour, by Sir Ralph Moray who arranges it, and by Lord Terence Barrymore, who takes the part of the chauffeur. One cannot help feeling that the effect would have been improved if this particular sub-division had been abandoned for a general progressive novel in either the first or third person. But when we have said this, we have said all that can really be alleged against the book. Other attempts at motor car novels have previously appeared. This is far and away the best of them that we have seen. There is real character-interest and real adventure, and, above all, what ought to be present to make the new method of travelling provide the pleasure it ought to do to its votaries, an appreciation of the scenery and historic associations through which the tourists are conducted. That portion of the book is altogether admirable. The characters of the story are a wealthy American widow (doing young), her daughter, who is doing younger to keep up the illusion, a beautiful American heiress, very cultivated and refined, though painfully pious, the two gentlemen we have referred to

above, and a wicked Austrian count—the villain of the piece—who finally attempts to kidnap the heiress and is pursued and discomfited by "my friend the chauffeur"—to wit, Lord Terence Barrymore. It would not be fair to say anything further about the plot, but the work, as already hinted, combines, in a pre-eminent degree, a certain chatty character of interest with a very profound appreciation of the natural beauty and associations of the countries visited, particularly the north of Italy. Some of the descriptions possess a really remarkable power, and that of the approach to Venice by road and gondola from Padua is a piece of descriptive writing which no one can ever read and forget. Here, as elsewhere throughout the book, the special charm of automobile travel, that it enables the traveller to see the country and all it presents yard by yard and almost inch by inch, emerges triumphantly, and, after all, an automobile story cannot do better than that.

English-French and French-English Dictionary of the Motor Car, Cycle, and Boat.

By FREDERICK LUCAS.

(London: E. & F. N. Spon. 5s. net.)

THE prominent position held by France in automobile manufactures renders a good, reliable, and practical French and English dictionary of automobile terms an important desideratum, and we accordingly welcome the present very conscientious attempt to tackle what is a singularly difficult problem—the adequate corollation of the technical terms of the two languages. Dictionary-making, from the time of Dr. Johnson to the present day, has always been recognised as a most thankless undertaking. Where the dictionary-maker is right he gets little thanks, and where he is discovered to be wrong every man's hand is against him. The best commendation that can be bestowed on the present work is that we have been able to detect but few errors. One of the most common terms in connection with a change-speed-gear has been rendered in English by the French term. We allude to "train balladeur," which is rendered by "balladeur train," which conveys no more information to anybody. When the next edition of the work comes out, we hope to see this rendering altered into "sliding-gear-train," which is what it really is. The dictionary comprises the usual two parts—English-French and French-English.

"North Wales Cyclists' and Tourists' Guide."

(Bradford: "T. Thrupp. Price 6d.)

THIS little guide, which is published at 6d., possesses an excellent map, and the information given in the various itineraries, which cover nearly the whole of the country dealt with, is concise and to the point. The arrangement, however, leaves a good deal to be desired. For instance, the description of Llangollen itself is not to be found under the heading of the "Vale of Llangollen," where it naturally belongs, but comes in one of the itineraries, and the illustration given is wholly unworthy of the place, being taken altogether from the wrong side of the valley. The illustration of Conway Castle, too, makes that grand, gloomy, and majestic old pile look almost ridiculous. Nor should a guide to North Wales dismiss Chirk Castle with the mere notice, "Chirk Castle is situated on Offa's Dyke, near Ceiriog Glen."

CORRESPONDENCE.

* * *The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.*

AUTO-CYCLE CLUB AND MOTOR CYCLING CLUB.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—During the past three weeks a number of paragraphs have appeared in the Press, and many circulars have been issued by the A.-C.C. relating to the affairs of the Motor Cycling Club. My committee hope that motorists and readers of your paper who may not be acquainted with the whole of the facts will suspend their judgment until such time as they have heard the arguments from both sides. Naturally my committee takes great exception to the threats thrown out broadcast by the A.-C.C., although it regards them as quite ineffective and purposeless. As far as this current year is concerned, the A.-C.C. has succeeded by means of what my committee believes to be doubtful expedients in spoiling the team competition for the "Motor Cycle" Challenge Cup, and this is a matter for which the donors of the cup have to thank them. We in the Motor Cycling Club are only the trustees of the cup, the annual competition for which we regulate and administer under a trust deed, which provides amongst other things that the competition must be held annually. In this deed drawn up by the Hon. Solicitors, J. B. Mackey and F. Purchase, the conditions under which the teams of various clubs are to compete are definitely set out. The Auto-Cycle Club as a governing body is not mentioned in the deed, and all that the Motor Cycling Club has done in the past is to attempt to carry out these conditions faithfully.

As trustees of the cup, this club does not regard itself as the winners of it this year; we are good sportsmen. The Motor Cycling Club will hold the cup until next year, when it will be again put up for competition. As regards the Brown Cup, the A.-C.C., in their haste to snatch an advantage, has made a false step. My committee has made this event a club event, and reduced the entrance fee to 5s. It is hoped the success of last year will be repeated. I may add that in the Brown Cup competition last year every competitor except one was a member of the club, and that one non-member has since joined. If any manufacturers of an all-British machine find a difficulty in providing a driver who is eligible, my committee will give facilities for the election of any suitable person nominated by them. As regards the future, the Motor Cycling Club will never acknowledge the A.-C.C. as other than a competing social club, until it ceases to be so and occupies itself with the functions of a governing body only. This is but reasonable. Clubs in the provinces may not feel the injustice so keenly as our own members do, but we are quite resolute in the determination not to support, financially or in any other way, a competing social organisation in our own city.

Thanking you on behalf of my committee for the courtesy of the use of your columns, I am, yours faithfully,

ARTHUR CANDLER,
Hon. Sec. Motor Cycling Club.

September 2nd.

TOURIST TROPHY RACE.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—It is interesting to note that a great many of the cars entered for the above race are now being withdrawn on some pretext or other, and it would be more interesting still to hear the extent of the special designs of carburettors and gears, &c., that have had perforce to be adopted on those cars which will eventually compete.

One reads of specially geared-up "top speed" for economising petrol consumption, and of other important and radical changes from the usual standard models of the entrants, so much so, that the private purchaser on the result of the race will have to make careful note to ensure receiving an identical car, and even then it is difficult to realise that they will be practical for hard work and the usual trying conditions in a private user's hands.

Most of the best firms have now perfected their productions to such an extent that it is almost always possible to run approximate miles to the gallon, or, at any rate, near enough to satisfy the most exacting users.

We refrained from entering a "National" car in the race for the reason that the general conditions and regulations do not seem to us to be fairly drawn up, not only from the manufacturer's point of view, but for the general public, as it leaves so many loopholes for making "freak" cars or faking.

On a consumption test, we have no hesitation in asserting that the "National" would be a very close runner to the best of any

other make of a similar cylinder capacity, and whenever consumption trials are held for guaranteed standard models, we shall be one of the first to support any such trial.

We shall scan your pages carefully for news and information regarding the special alterations that have necessarily been made in the chassis and body designs to bring the cars into competing form.

We are, Sir, yours truly,

September 5th.

LAMB BROS. AND GARNETT.

To the Editor of THE AUTOMOTOR JOURNAL.

Sir,—Being convinced that motor racing with high-powered cars is impossible in this country, and that something on the lines of the Tourist Trophy Competition is the only useful form of race possible, I have entered a Standard car. I cannot, however, be blind to the fact that the race puts a premium on excessive speed down hill. It also seems somewhat absurd to limit the weight, as if the race is to help in the development of the perfect car, by encouraging efficiency, surely the constructor who can, on his limited petrol allowance, propel a larger weight should be allowed to do so, especially as the increased weight of modern touring cars is largely due to longer and heavier springs and tyres, the advantages of which must be sacrificed by the constructor who has to reduce his chassis weight to come within the weight limit. Doubtless this year's race will be an experiment, but I think all who realise the requirements of the motor tourist will admit that the conditions are not such as to encourage average speed and comfort, the tourist's two chief requirements. The latter cannot be taken into account in a race, but the weight limit, for the above reasons, regarding tyres and springs, is undesirable.

As to average speed, the required car for general touring purposes does not want extremely high gears for downhill work, nor does it require these to be operated by a separate lever. It appears that in the Tourist Trophy event, a car may make an average speed which may appear very good, and attain it by excessive speed down hill. My idea of a useful competition would be to time the cars at various points on a mountainous road, and only race on uphill stretches, the downhill portions of the course to be controls in which a minimum speed should be fixed. Cars would have to keep up touring speeds downhill, say, 20 miles an hour, and the petrol consumption basis might still hold good. Possibly, however, the chance of accidents downhill under present conditions will prove too attractive for any less exciting form of race to be adopted.

Yours faithfully,

August 30th.

R. W. MAUDSLAY,
THE STANDARD MOTOR COMPANY, LIMITED.



40-h.p. Crossley Car.—Among next season's cars will be an important addition to the well known Crossley vehicles, with which Messrs. Jarrott and Letts have done so much business since they introduced them to the motoring public at the Crystal Palace Exhibition in 1904. The new car will have a 40-h.p. engine, four speeds and a reverse will be provided by a gear-box of the Mercedes type, and the rear wheels will be chain driven as in the smaller model which we described in our issues of January and February, 1904. Very long springs will support the frame at either end, those at the back being 4 ft. in length. Ball bearings will be fitted throughout the transmission, the foot-break on the differential countershaft will be water-cooled, and the clutch will be of the same internal expanding pattern as that now in use. In designing the chassis full account has been taken of the most up-to-date automobile practice, and this, coupled with recognised excellence of both workmanship and materials, as evidenced by the performance of the Crossley cars already in use, should ensure an immediate popularity for the new vehicle, which, by the way, is mainly being put on the market "by request" of several satisfied users of the smaller Crossley cars.

THE fares on the motor omnibuses running from London to Brighton and back daily have been reduced, for the inside seats, to less than the ordinary third class railway fare. Up to the present the daily runs have proved very successful.

LONDON TO SALISBURY ON THE "DIRECT" DRIVE.

ALTHOUGH less than a year has elapsed since the Rolls-Royce cars were introduced to the public, first at the Paris Salon and then at Olympia, yet these British-built vehicles have already achieved wide and enviable reputation. Few manufacturers have attempted to build a six-cylinder model during the first year of their connection with the industry, and the successful issue of Messrs. Royce's enterprise in this direction offers as convincing a proof as could be desired of the expert and thorough manner in which they have attacked the problems of automobile construction, and at the same time it affords an opportunity for congratulating Messrs. C. S. Rolls on their astuteness in securing for themselves the sole agency of these desirable vehicles.

Quite recently we have had an opportunity of observing the practical behaviour of their latest six-cylinder model on the road, and we have, in consequence, no hesitation in saying that it ranks in the very highest class of automobiles on account of its general excellence. With four up we journeyed from London to Salisbury, *via* Winchester, entirely on the top speed, and on more than one occasion there were hills so steep that they caused the car speed to be reduced to ten miles per hour, and yet it was found unnecessary to change off the top gear, for the engine finding itself, even at that slow speed, capable of the work it had to do, continued to pull steadily and with perfect evenness to the top of the hill. To drive at ten miles an hour on the level is considered as evidence of sufficient flexibility on most fast cars, but there are very few in which the engines are capable of running evenly at this slow speed while heavily loaded. To attempt the task in many cases results in the immediate production of symptoms of distress which are sufficiently

pronounced to be a source of annoyance to the passengers, but on this car the up-hill work was by far the most delightful part of an extremely pleasant run over roads which in the days of old would have caused such a journey to be characterised by a series of down-hill rushes and up-hill grinds.

It is very generally recognised at the present day that although 4-cylinder engines give the average motorist all he can reasonably desire the *automobile de luxe par excellence* has an engine, the cylinders of which number six, and there is no doubt that the extra pair of cylinders were largely responsible for the sustained pull necessary to enable the car to surmount such steep hills on so high a gear—for the engine was of quite normal size—but we have observed in our recent tests that noticeable efficiency under such conditions is a marked characteristic of high-class productions.

Mr. Claude Johnson on the six-cylinder Rolls-Royce Car, which he recently drove from London to Salisbury, *via* Winchester, entirely on the top gear. During four consecutive days the car covered in all nearly seven hundred miles without receiving the least attention to its mechanism, and after this trip it was taken over to the Isle of Man, where it figured as one of the "official" cars during the Tourist Trophy Race.



THE current number of *Pearson's Magazine*, which is entitled the "Sports Number," contains a collection of short articles on all our most prominent and popular sports. Needless to say, that amongst these there is one on motor boat racing, from the indefatigable pen of Mr. S. F. Edge, who, amongst his multifarious employments, always seems able to find time to write something on the motor car question. From Mr. Edge's remarks, which are a good example of his trenchant style, we would quote the following:—

One reason is that motor car racing calls not only for athletic ability, but also for highly technical knowledge. Thus it gives one two difficulties to triumph over.

First, it is necessary to become physically fit, so that one may be able to stand the strain of driving for eight or ten hours, with the senses during the whole time tuned to the highest pitch of concentration, in order that one may take every curve at the maximum speed, with the most perfect accuracy, and with the minimum strain on tyres and car.

Then a high technical knowledge is essential, since every mile of the road must be taken in a different way. Mere speed never

won a race. You must remember that the instrument beneath you is more sensitive than the finest racehorse. It will respond to the accelerator so nobly that it will absolutely tear itself to pieces in its efforts to do all its driver urges it to do.

The preparations for a race are full of fascination. The road must be learnt absolutely by heart. One must know exactly the utmost speed at which one may go on every straight bit, while every curve must be judged so that the best speed may be compassed with the minimum application of the brakes.

Another article in the same magazine is devoted to the comparison of English and Americans in various sports, from which we also cull the following suggestive observations:—

Motoring in the United States is, if anything, more popular and widely indulged in than it is in England. Here, as in other matters, the American always wants to go very fast, and even in his parks he is as often as not (as becomes a self-respecting motorist) to be found exceeding the speed limit to a very grave extent. For quite a long time it was a recognised form of amusement to get caught and haled before the Bench for this offence. The mounted park-policemen made quite a good thing, it is said, out of the tips received by them for arresting the fair motorists who were defying the law.

RACES, RECORDS, AND TRIALS.

Tourist Trophy Race.—The petrol allowance for each car for the full course was $9\frac{1}{4}$ gallons, equal to $22\frac{1}{2}$ miles per gallon.

Graphic Challenge Trophy.—Altogether for this Trophy, competed for on Friday of this week in the Isle of Man, and particulars of which we gave last week, there were 12 entries. These were, in their official order for starting, as follows:—

No.	Entrant and Car.	Driver.
1	Humber, Ltd., 16-20-h.p. Humber ...	T. C. Pullinger
2	Chas. Sangster, 30-h.p. Ariel Simplex...	J. D. Spencer
3	Chas. Sangster, 40-h.p. Ariel Simplex...	Chas. Sangster
4	E. W. Lewis, 16-20-h.p. Rover ...	E. W. Lewis
5	Capt. Deasy, 30-40-h.p. Martini ...	Max de Martini
6	Capt. Deasy, 30-40-h.p. Martini ...	Capt. Deasy
7	Capt. Bennett, 14-17-h.p. Dixi... ..	Capt. W. H. Bennett
8	A. D. Grigg, 28-36-h.p. Daimler ...	A. D. Grigg
9	F. R. Simms, 20-24-h.p. Simms-Welbeck	R. Lascelles
10	A. Farnell, 30-40-h.p. Daimler... ..	A. Farnell
11	Capt. Bennett, 14-17-h.p. Dixi... ..	J. Beirreis
12	Guy V. Baxendale, 24-h.p. Thornycroft	Guy V. Baxendale

A 100 Miles Speed Judging Contest.—In regard to the report of this meeting of the Hull A.C. in our issue of September 2nd, the results published were, it appears, not issued officially. The actual winner, we learn, was Mr. G. H. Strong, on a 12-h.p. Brush car, he being, with 6h. 4m., closest to the scheduled time of 6h. 3m. 32s. (17 miles per hour). Mr. Arthur Atkinson, on a 15-h.p. Rose car, was second in 6h. 4m. 51s.—two remarkable performances. In Class 2 for Motor Cycles, the first 3 were (1) Mr. T. T. Philipson; (2) Mr. G. Parker; (3) Mr. H. Whiteley.

An impromptu hill climb for cars will take place subsequent to the motor cycle hill climb of the Sheffield A.C. to-day (Saturday). This climb will be confined entirely to non-trade members of the club.

Brescia Automobile Week.—This meeting started on September 2nd with an exhibition of cars, and finished on September 10th, when the real attraction of the whole week—the Brescia Circuit Race, and the contest for the Florio Trophy—took place. Mild excitement was furnished on the 3rd instant by the finish at Brescia of the motor bicycle race which had been run over a distance of 1,000 kiloms., starting from Milan, and in which the following makes were winners: (1) Stucchi, (2) Neckarsulm, (3) Adler. The Industrial Vehicle contest was run off on the 4th, 5th, and 6th, the next two days being devoted to motor boat racing on the Lake Garda. Main interest was concentrated in the Brescia Circuit Race on the final day, and when it was known an Italian car with an Italian driver was the winner, enthusiasm of a very demonstrative character naturally ensued. The length of the circuit is 167.1 kiloms., which was covered three times, making a total distance of 501.3 kiloms. Although originally it was intended to run the race without any neutralisation or slowing down from start to finish, it was later deemed necessary to specify three points where competing cars were re-separated by a time limit, in similar manner to the cars in the Gordon-Bennett Race on the Auvergne Circuit. These were at Brescia, Cremona, and Grazier. The course was

thoroughly well kept by 2,500 soldiers, whilst about 400 police and carabinieri, 600 cyclists, and 120 trumpeters were also employed in helping to regulate the traffic and deal with the general conduct of the course. 21 cars actually started, the first, Hémery, on a Darracq, being sent off at 6.30, the final one to start being Terry, on a Mercedes, at 7.52. Of these 11 ultimately officially finished, Raggio, on an Itala car, being declared the winner in 4h. 46m. 47 $\frac{1}{2}$ s.; Duray, on a De Dietrich, being about 10 mins. after him; Lancia, on a Fiat, following about an equal time behind Duray. The result should be a matter for considerable congratulation to the Italian manufacturers, who have thus followed up their fine running on the Auvergne Circuit by demonstrating their splendid staying and speed powers in this instance. Through unfortunate mishaps some promising cars were eliminated in the earlier rounds, the respective disappearances being as follows:—

First Round.—Le Blon (Isotta Fraschini), Cagno (Fiat), Gasteaux (Mercedes), Cortese (Mercedes).

Second.—Weilschott (Fiat), Gandini (Fiat).

Third.—Ceirano (Itala), Marieaux (Mercedes), A. Clement (Bayard-Clement), and Carles (Bayard-Clement).

The official results with times were as follows, the respective neutralised periods under the "time re-spacing" arrangements at the three points already mentioned, being also given:—

		h.	m.	s.	Neutral'd.	m.	s.
1.	Raggio (Itala) ...	4	46	47 $\frac{1}{2}$	...	35	0
2.	Duray (De Dietrich) ...	4	56	20 $\frac{1}{2}$	...	16	0
3.	Lancia (Fiat) ...	4	57	4 $\frac{1}{2}$	...	9	44
4.	Hémery (Darracq) ...	4	58	12	...	6	0
5.	Rougier (De Dietrich) ...	5	12	50 $\frac{1}{2}$	...	5	0
6.	Nazzaro (Fiat) ...	5	12	52	...	36	0
7.	Fabry (Itala) ...	5	18	10 $\frac{1}{2}$	...	32	0
8.	Wagner (Darracq) ...	5	19	2 $\frac{1}{2}$	...	25	0
9.	Florio (Mercedes) ...	5	29	11 $\frac{1}{2}$	...	11	0
10.	Gabriel (De Dietrich) ...	5	33	44 $\frac{1}{2}$	...	16	0
11.	Terry (Mercedes) ...	6	21	45	...	—	—

Raggio thus secures the Florio Cup, Ceirano, also with an Itala car, who was running splendidly until the last lap, obtaining the cup offered for the best time over the first 300 kiloms., the Itala house likewise securing the Salemi Cup for the best team of three cars in the race. The Michelin Tyre Company have also reason for congratulation in the fact that the first ten cars were all shod with their product. Last year, when Lancia on a Fiat car secured the Florio Trophy over a circuit of 370 kiloms. in 3h. 12m. 56s., Raggio was driving a light Itala car, he finishing second in his class in 4h. 17m. 6 $\frac{1}{2}$ s.

Royan Meeting.—A pleasant week resulted from the Royan automobile fixture, which commenced on September 2nd with a Fuel Consumption Trial from Bordeaux to Royan, in which eleven of the competitors were officially timed. The results of this were:—

Car and Passengers.	Time.	Fuel.	Points.
	h. m.	litres.	
1 10-h.p. De Dion (5) ...	3 9	9	136
2 24-h.p. Mors (7) ...	2 40	21	172.8
3 10-h.p. Renault (4) ...	3 21	12	241.2
4 60-h.p. Berliet (4) ...	2 30	24	360
5 12-h.p. Corre (4)... ..	3 33	19	404.7
6 24-h.p. Berliet (4) ...	2 30	24	404.8
7 24-h.p. Berliet (4) ...	3 0	25	405
8 10-h.p. Gard.-Serp. (5)...	3 39	42	459

On Monday and Tuesday, on the front at Royan, speed

tests were held over 1,609 metres with a standing start. The results were:—

Motor Bicycles.—1, Cissac, 12-h.p. Peugeot, 57s.

Cat. 2. Cars 600 kilogs.—1, 12-h.p. Delahaye, 1m. 19s.

Cat. 3. Cars under 12-h.p.—1, 10-h.p. Aster, 1m. 33s.

Cat. 4. 15 to 30-h.p.—1, 24-28-h.p. Mercedes, 1m. 54s.

Cat. 5. Closed vehicles from 15 to 30-h.p., was gained by a 34-h.p. Mors.

Cat. 6. Racing Cars under 1,000 kilogs. and over 30-h.p.—1, 60-70-h.p. Panhard, 1m. 20½s.

The last day of the meeting was devoted to a motor car and balloon chase, and the distribution of the prizes.

MOTOR CYCLING.

Irish Motor Cycle Union.—The annual contest between teams representing the Dublin and Belfast Centres of the Irish Motor Cycle Union of Ireland took place on Saturday last, starting from Balmoral, Belfast, and finished at Tolka Bridge, Drumcondra, Dublin. The contest was for the cup presented to the Ulster Centre of the Union by the president of that body, the Hon. Leopold Canning, D.L. Belfast won the event in 1903, Dublin the following year, while in the early portion of the present season, the event held in June was, after consideration by the committee, declared void, owing to an error in the route card, and the arrival of several competitors at the finish before the scheduled time. The event was re-run on Saturday, when the following teams started from Balmoral, Belfast, at 1.30 p.m.:—

Ulster Centre.—A. W. Hamilton, F. Hulbert, J. Stewart, J. Newhall, J. Holden, J. McAllen, C. Montgomery, T. Ireland, H. G. Ferguson, P. S. Brady.

Dublin Centre.—C. B. Franklin, T. W. Murphy, G. Magus, H. Mooney, W. H. Meredith, S. Black, R. W. Howison, J. A. Armstrong, J. Mooney, R. E. Price, W. Jacques, J. G. Link, C. G. H. Lewis, J. D. Redmond, G. "James." The roads, owing to the recent inclement weather, were bad in the early stage of the journey, side-slips and punctures reduced the number of competitors before Dundalk was reached, and of those remaining in to the finish fifteen arrived at the timing line, Tolka Bridge, Drumcondra, Dublin, between the hours of 6.19 and 7.55 p.m. Result:—

DUBLIN.

J. A. Armstrong (3½-h.p. Swallow) ...	100 marks.
H. Mooney (2½-h.p. F.N.) ...	100 "
J. Mooney (2½-h.p. F.N.) ...	100 "
R. W. Howison (2½-h.p. F.N.) ...	100 "
Total	400 "

BELFAST.

J. Stewart (2½-h.p. Triumph) ...	100 marks.
F. Hulbert (3-h.p. Triumph) ...	100 "
J. Holden (3-h.p. Rover) ...	100 "
P. S. Brady (3½-h.p. Bat) ...	90 "
Total	390 "

A MOTOR cycle hill-climbing competition is being held to-day (Saturday) under the auspices of the Sheffield A.C., when the following members are qualified to compete:—Messrs. F. Donovan (2½-h.p. De Dion), G. D. Fletcher (3½-h.p. White and Poppe), W. L. Gilder (2½-h.p. Royal Enfield), F. W. Oates (2½-h.p. De Dion), J. Walker (5-h.p. Devonshire).

AN open hill-climbing competition for motor cycles will be held on Maple Hill, near Boxwood, by the Hertfordshire A.C. on the 23rd instant. The competition will be conducted under Auto-Cycle Club rules, and will be a handicap based on a formula provided by the A.C.C. There will be four classes, viz.:—1. For machines having a cylinder capacity equivalent to 76 × 76mm.; 2. Cylinder capacity up to 85 × 85mm.; 3. Unlimited cylinder capacity; 4. Passenger vehicles. The entrance fee for non-members will be 7s. 6d. Entries will close on Tuesday, the 19th inst., and should be addressed to the hon. sec. at 7, Whippendell Road, Watford.

MOTOR cycles in France continue to increase in popularity. According to statistics just published by *Les Sports*, the number of motor bicycles on January 1st of the present year was 27,435, against 19,816 on the 1st January, 1904.

The Hallé Spring Wheel.—The long distance trial of these wheels, on the Wolseley car, is, we learn, proceeding satisfactorily, 2,850 miles having been completed up to the 9th inst. without any wheel trouble.

THE Automobile Association of Bengal have arranged to hold reliability trials in India from January 26th to 30th next. The vehicles will be divided into three classes, according to price. There will be five runs over a total distance of 583 miles, as follows: January 26th, Calcutta-Asansole, 133 miles; 27th, to Ranchi, 134 miles; 28th, to Hazaribagh, 45 miles; 29th, to Asansole, 138 miles; 30th, back to Calcutta, 133 miles. On the third day a hill-climbing test will be included.

French Trials for Tricars.—Under the auspices of our French contemporary, *L'Auto*, who organised the event, twenty-one tricars set out on Sunday last to cover a distance of 100 kiloms. over the road between Saint-Germain and Mantes, which places lie 33 kiloms. apart. Three journeys were consequently made, the start being from Saint-Germain and the finish at Mantes. During the return run from Mantes, a timed climb took place over a kilom. up Flins Hill, at the bottom of which each tricar made a standing start. On the last outward run to Mantes the machines were timed over a flying kilom. a few miles from the finish. Of the twenty-one starters eighteen finished the entire journey within the limit time of five hours, no competitor being allowed to drive at a greater speed than 30 kiloms. per hour, except while being timed over the two kilom. stretches.

The winning machine was Bozier III. (Michelin tyres), driven by Schweitzer, and a tricar of similar make came in second. The third and fifth places were secured by Contal tricars—a make of machine which has, since the Auto-Cycle Club's Reliability Trials, become known in this country. The Moto-tri Contal machines are primarily constructed for commercial use as light delivery vans, and in this direction they are deserving of close attention from those to whom such a compact form of machine would be suitable. M. Contal, who states boldly that 100 kiloms. is useless for testing the machines, has offered to run against any of the competitors over 1,200 kiloms. without a stop. The following are the times over the kilom. for the six fastest competitors:—

Place.	Machine and Driver.	Weight.		Time for 1 kilom. on		
		Empty.	Loaded.	Hill.	Level.	Total.
		Kilogs.		m. s.	m. s.	m. s.
1	Bozier III. (Schweitzer)	170	320	2 23	1 22½	3 45½
2	Bozier I. (Giraud)	170	310	2 43	1 21½	4 4½
3	Contal II. (Rivière)	170	320	2 38½	1 28½	4 6½
4	Austral III. (Cheilus)	170	310	2 46½	1 21½	4 8½
5	Contal III. (Pillas)	180	330	2 59½	1 28	4 27½
6	Bruneau I. (Foulon)	90	240	3 6½	1 27½	4 34½

New Records.—New motor bicycle records were established for machines with one-third litre cylinder capacity, on Sunday last, by Cissac on a Peugeot machine at the Paris Parc des Princes Track, his time for the 100 kilometres being 1h. 10m. 35½s., beating Collomb's previous record time for the same distance by nearly 2 min., and further beating Collomb's distance in the hour by over 2 kilometres, with 84.7 kilometres. A remarkable feature of the run was the evenness of Cissac's last laps. For the 10 kilometres, from 70 to 80 and 80 to 90, the times were identical, and the last 10 kilometres of the 100 were timed for 6m. 59½s., the best 10 kilometres being done in 6m. 52½s. Cissac commenced to make his records from the 20th kilometre. The chief new records put up were:—

	Old.	Cissac's.		Old.	Cissac's.
	m. s.	m. s.		m. s.	m. s.
30 kil.	21 10	20 56½	70 kil. ...	50 26½	49 41½
40 kil.	28 32½	27 57	80 kil. ...	57 58½	56 38½
50 kil.	36 2½	35 5½	90 kil. ...	1 5 27½	1 3 35½
60 kil.	43 19	42 41½	100 kil. ...	1 12 20½	1 10 35½

MOTOR BOATING.

British International Cup.—When we stated last week that the British boats would be left to "walk over" the course in order to bring back Sir Alfred Harmsworth's Cup to Great Britain, as even Palaisoto had retired from the contest on behalf of France, the information was strictly correct. But the sporting instinct inherent in the committee of the French Club, which has charge of this section of automobilism, induced them to prevent the race from losing its international character, and they arranged, with the consent of the British competitors, to give the visitors to Arcachon a run for their money by nominating Loodit III, engined by Theverin and Seguin with an 118-h.p. motor, and M. Thubron's Mab, a well-known British-owned motor craft in Continental waters, fitted with an 80-h.p. Richard-Brasier motor, to take up the running. Although only Mab ultimately started on behalf of France, the semblance of a contest against the British greyhounds of the sea was created, and an attractive event rewarded those who had come to see what fast motor boating really was.

The start for the race was made at 2.30. the two Napier boats getting away in splendid style, and gaining, from the first, rapidly on the other competitors. A strong wind was blowing, and provided a beautiful sight by the clouds of spray which at times quite enveloped the racers. Towards the finish of the first lap, Napier II. broke a terminal, and was running for about half a mile with one engine only firing, Lord Howard de Walden's Napier, steered by Mr. Seaton Edge, during this ease off, getting ahead. Not for long, however, for the mishap once put right, Napier II. rapidly overhauled her, and steadily distanced the other boats right up till the finish. Brooke unfortunately got into difficulties during the first round, although her start was good, and was ultimately towed home. Mab managed to keep going without trouble until the third round, when for a time she broke down, eventually, however, crossing the finishing line. The time for Napier II., which secured the Cup for Great Britain, was 1h. 32m. 26s. for the full course of 30 marine miles. This splendid racer is the joint property of Mr. Lionel de Rothschild and the Hon. John Scott Montagu, the latter, upon this occasion, steering the boat to victory. Napier's time was 1h 33m. 33s. The times for the respective laps of the Napier craft were as follows:—

		Napier II.			Napier.	
		m.	s.		m.	s.
First round ...	...	23	55	...	23	5
Second round ...	...	21	21	...	22	48
Third round...	...	22	14	...	23	17
Fourth round	...	24	56	...	24	23

Sir Alfred Harmsworth, who witnessed the race, was so impressed with the advantages of the Arcachon Bay for racing purposes that he has offered to give a special Cup for a competition in these waters.

The Deutsch Cup.—On Tuesday, Napier II. followed up her success and secured this trophy, offered by M. Deutsch de la Meurthe. The course was the same as for the Harmsworth Cup. Results:—

Cat. 1.—Boats over 8 metres: (1) Napier II., 1h. 27m. 36s.; (2) Napier, 1h. 52m. 34s. Napier in the last lap lost 20 minutes through a stop. Brooke I. abandoned the race early after the start, and is now returning to England.

Cat. 2.—Boats under 8 metres: (1) Herald, 2h. 40m. 5s.; (2) Lanturlu, 3h. 23m. 45s.

For the "Prix d'Honneur," Napier II. had a "walkover" the two laps, equal to 15 miles. Her time was 41 m. 3 s., this giving a better speed than any accomplished during the whole two days racing.

Coupe Récopè.—On Saturday last, in Arcachon Bay, the competition for the Récopè Cup took place. This, it will be remembered, is given for craft using alcohol as fuel, and although three boats were entered for the contest, viz., Cazemoto, Mab, and Herald, only Cazemoto actually started. The distance was 75 miles. This Cazemoto accomplished with remarkable regularity, especially in the earlier laps, the full distance being covered in 8h. 25m. 25s. The course was 7½ miles, and therefore had to be covered ten times, the best lap time being the fifth, in 47m. 55s., each of the first four laps having been accomplished in about 48m. 50s. The 7th, 8th, 9th, and 10th rounds occupied respectively 49m. 16s., 52m. 46s., 59m. 23s., and 53m. 1s. Last year the Cup was secured by Monsieur J. Cazes with his boat, Marthe, over the Calais to Dover course.

Lake Garda Motor Boat Races.—The two days' motor boat racing on Lake Garda, which took place during the Brescia Automobile Week, resulted in some good sport. On the first day, September 7th, in the morning the cruisers were sent off over a course measuring 65 kiloms., and during the afternoon the racers took their turn over 105 kiloms. Good weather prevailed, and the chief results on this day were:—

CRUISERS. *Series 1: Under 6½ metres.*—1, Mendelssohn (Mutel motor), 2h. 38m. 29s.; 2, Delahaye V., 2h. 47m. 27s.

Series 2: 6½ to 8 metres.—1, Excelsior VII. (Picker-Moccand motor), 2h. 34m. 51s.; 2, C.P.N. (Thornycroft motor), 2h. 54m. 8s.

Series 3: 8 to 12 metres.—1, Delahaye VI., 1h. 58m. 55s.; 2, Fiat X., 2h. 2m. 50s.

RACERS.—1, Antionette III. (Levasseur motor), 2h. 36m. 46s.; 2, New Tréfle (Richard-Brasier motor), 2h. 41m. 47s.

On the second day, September 8th, the whole of the craft, including racers, cruisers, and "extra reglementaire" boats, were despatched over a course of 152 kiloms. On this day Antoinette III. upheld her fine reputation by covering the distance at a speed of nearly 50 kiloms. per hour, her time being for the distance 3h. 2m. 42s.—a world's record. In the cruisers the results were: (1) Delahaye VI., 4h. 25m. 50s.; (2) Fiat X., 4h. 42m. 59s.; (3) Excelsior VII., 5h. 41m. 59s.; (4) Mendelssohn, 6h. 11m. 49s.

THAMES CONSERVANCY REGULATIONS FOR MOTOR BOATS ON THE THAMES.

THE Thames Conservators, who, as our readers are aware, have for some time past been tentatively dealing with the question of regulating motor boat traffic on the Thames, have now issued the following regulations, by which the traffic in future will be controlled. These have still to receive the confirmation of the Local Government Board, but this no doubt will be purely a formal matter.

Carburettors so fitted as in the event of an overflow to drain into a gauze-covered receptacle capable of being emptied from time to time as may be necessary, and of a form to be approved by the Conservators.

Fuel tanks constructed of copper or an alloy of copper riveted, or of steel efficiently galvanized after making up, and their freedom from leakage or liability to leakage ascertained by testing.

A closed locker provided for the stowage of cans containing petrol carried in excess of that contained in the fuel tanks.

Fuel tanks installed in such a position that ready access can be had to all connections.

All fuel pipes of seamless drawn copper or other tubing approved by the Conservators.

Fuel pipes fitted with ground cone union joints or other approved form of joint, and not with flange or socket joints. The main fuel pipe provided with two "concertina" bends or coils, one close to the fuel tank and the other close to the carburettor.

Fuel pipes carried where they are least liable to become damaged, and in all cases so fitted that ready access can be had to them, and all connections throughout their entire length.

One cock fitted to the fuel feed-pipe where it leaves the tank and another where it joins the carburettor.

The exhaust-pipe water-cooled unless taken into a funnel. Where the exhaust-pipe is taken into a funnel provision made to prevent liability of ignition of inflammable vapour in any part of the boat.

The silencer effective as regards suppression of noise of exhaust to the satisfaction of the Conservators and constructed of sufficient strength to prevent it being injured by the occurrence of an explosion therein.

A spirit-tight tray or receptacle, the sides of which are carried up as high as the propeller-shaft will permit of, fitted beneath the engine so as to prevent leakage of spirit and lubricating oil escaping into any other part of the boat.

The ignition circuit throughout carefully insulated. High tension leads from coil to sparking-plugs carried through a water-tight tube or so installed as to prevent leakage of current or risk of breakage or damage by water. Electric leads rigidly fixed.

If a spark gap be employed, it must be so enclosed as not to be capable of igniting inflammable vapour.

Some form of sparking-plug employed in which external sparking is as far as possible guarded against.

If trembler coils are employed, the same must be placed in a position where an accumulation of inflammable vapour is not likely to occur.

No form of hot tube ignition employed.

The master of every petrol motor launch, whilst waiting to enter or when in any lock on the Thames, shall give to any officer of the Conservators such facilities as he may demand to inspect such petrol motor launch with a view to ascertaining whether the aforesaid requirements are complied with.

Whilst waiting to enter, or when in any lock on the Thames, the master of any petrol motor launch, and the person or persons on board the same, shall comply with the following regulations:—

Having entered a lock the cock on the fuel feed pipe shall immediately be closed, and shall not be re-opened until the lock gates are opened for the egress of the vessel or vessels then in the lock.

In any lock the engine shall be stopped before the lock gates are closed, and shall not be restarted until the gates are opened for the egress of the vessel or vessels then in the lock.

No fuel tank or petrol can shall be opened or manipulated on any petrol motor launch.

Any petrol carried in excess of that contained in the fuel tanks shall be carried only in two-gallon cans, of a pattern approved by the Railway Clearing House for conveyance of petrol by the railway companies. Such cans, whether full or empty, shall be stowed in a closed locker, which must not be used for any other purpose while any petrol can is therein.

No person shall strike a match whilst on any petrol motor launch.

With a view to prevention of fire a proportionate quantity of sand equal to one-half a cubic foot for every complete 12 ft. in length of the hull of the petrol motor launch, together with a shovel or scoop, shall be carried in some readily accessible place.

Any person acting in contravention of any of these bye-laws shall for every such act be liable to a penalty not exceeding £10, and in the case of a continuing offence to a further daily penalty not exceeding the like amount, which said penalties shall be recoverable, enforced, and applied according to the provisions of the Thames Conservancy Act, 1894.

✱ ✱ ✱ ✱ AERONAUTICS.

MR. BALDWIN, whose death whilst ballooning in America we recorded last week, must not be confused with "Professor" Baldwin, who has been so long known as a parachutist in Great Britain.

THE navigable balloon, Toledo No. 2, with which Mr. Knabenshue has been entertaining the people of New York, is a departure from the design of the vessel, Baldwin's "California Arrow," which he so successfully navigated at the World's Fair. Toledo No. 2 is in general shape and size exceedingly like M. Santos Dumont's little No. 9, with which he used to gallivant

about the Paris streets and parks, excepting that it has the propeller (which is consequently really a tractor), arranged at the front of the framework instead of the rear. The total amount of gas required for inflating Toledo No. 2, is 7,000 cubic feet. Mr. Knabenshue is of opinion that this shape presents advantages in two respects. It diminishes the tendency of the gases to shift and accumulate at one end (though, perhaps, some difference of opinion may prevail on this point), and it also diminishes the resistance to movement through the atmosphere.

¹ London, 12.35. ² Brighton, 2.10 p.m. ———— Sea ———— ³ France, 8 p.m.
During his cross-channel trip to view the eclipse, which we chronicled last week, Mr. Frank H. Butler took barometric readings with a recording barometer during the whole of the trip, and the chart of these we have, by his courtesy, been able to reproduce above. The wavy line shows the barometer readings, while the alternate columns of figures give the height in metres and the barometric pressure in millimetres of mercury. It will be seen that the variations in height during the trip were very considerable, the highest altitude having been, as may be observed, just above 3,000 metres, or approximately 10,000 feet.

AN account of an airship race *pour rire* is reported from Los Angeles between Mr. Wordin Twombly's airship, "The Bullet," and a contraption of Mr. Elver Renold, entitled "The Man Angel No. 2." The race was to take place over 30 miles, after accomplishing which, the airships were to come back again to the starting point. None of them, however, succeeded in returning, but we are informed that the "Man Angel," which is propelled by oars and rose to a height of 3,000 feet, *would have won had she returned*. "When the sky falls," as the old proverb says, "we shall catch larks."

THE "BETTORUS" NON-SKID.

There are now an almost innumerable number of non-skid devices on the market, but that type

which seems to have received the greatest support from the motoring public is undoubtedly the leather tread variety, of which there are now quite a number of first-class manufacturers. In many cases, these bands embody some special feature which has been devised as an improvement by the respective makers, and in the "Bettorus" non-skid band—which is the most recent to come before our notice—the peculiarity lies in the construction of the rivets used for studding the tread. These, instead of being formed in one piece, are made in two parts, the object of this being that it enables the separate washer forming the head to be case-hardened to resist wear, while the bifurcated rivet itself is left soft so that it may be better suited for riveting. In other respects, the band, which is constructed of pliable chrome leather, is similar to those which we have already described; the sides of the band are carried right over the beaded edges of the tyre.



Royal Commission on Motor Cars.

The first sitting has been provisionally arranged to be held on Monday, October 16th. The offices of the Commission are at 68, Victoria Street, S.W.

"Legalimit" Car.—A new car is shortly to be placed on the market by Messrs. C. S. Rolls and Co., which will be distinguished by the title, "Legalimit" Car, it having been "specially designed to maintain a constant speed of twenty miles an hour everywhere—uphill, downhill, and on the level—without changing gear." An order for one of these cars has, we learn, already been placed by Sir Alfred Harmsworth, Bart., who has given instructions to have the chassis fitted with a special form of body designed to his own specification. This completed car will be a feature of Messrs. C. S. Rolls and Co.'s stand at the next Olympia Show.

CLUBS AND ASSOCIATIONS.

Aero Club.—The programme for the Autumn season includes September 23rd and 30th meet at the Crystal Palace, October 7th at Reading, 14th at Salisbury, 28th at Oxford. The balloon ascents at the first two meetings will be at 2.30 p.m., and at the October meetings at 12.30 p.m.

Ashby de la Zouch Inter-Club Meet.—An inter-club meet is taking place to-day, Saturday, at Ashby de la Zouch, in which the Nottinghamshire, Derbyshire, Lincolnshire, Leicestershire, Manchester, Wolverhampton, and Sheffield Automobile Clubs are taking part.

Scottish A.C.—At a meeting of general council held in Glasgow last week, it was agreed that the club should take steps to look after the interests of manufacturers and users of commercial and heavy vehicles, and that a special committee or section should be formed for this purpose. A committee was appointed to consider the best means to carry this into effect.

Lengthy consideration was given to the subject of the Royal Commission, and to the arrangements necessary for obtaining information and data for submission to the same, and a representative committee was appointed to deal with the matter, and to act in conjunction with the Joint Committee of the Automobile Club and the Motor Union.

The Society of Motor Manufacturers and Traders.—In addition to the munificent sum of £500 contributed by the society to the legislative fund of the Joint Committee of the Automobile Club and the Motor Union, appointed to prepare evidence for the purposes of the Royal Commission on the Motor Car Acts, the society is bearing without outside assistance the whole of the very considerable expense in obtaining trade statistics which will be used in evidence to be given by the society itself before the Commission. Already returns have been made by some of the leading manufacturers, who have at the same time applied to the society for forms for all their agents, showing the importance they attach to the matter. The names of all the firms making returns will be published from time to time.

ON Thursday, August 31st, at the Hotel Cecil, the second ballot for space at the Olympia Show took place, and practically all the space in all the sections was dealt with.



Designs for interchangeable bodies are daily becoming more ingenious. In the above photograph a recent instance of this character is seen in the 22-28-h.p. Crossley Car which has just been built for Mr. Walpole Greenwell, of Woldingham, Surrey. The whole of the top, it will be noticed, is detachable in one piece, and in order to make a satisfactory job in this form, a fresh fitting is supplied to the car to form the back of the front seats in place of those which are removed with the super-structure. This carriage work has been executed by Mr. Mulliner, of Northampton.

Tramillogical.—The motor 'bus has produced its effect on literature of a kind if it has done nothing else, for since its appearance on our streets there has been a perfect cataract of articles more or less convincing, designed to demonstrate the many superior advantages of the electric tram. A lengthy communication of this kind appeared in a recent number of the *Engineering Review* (which, by the way, is illustrated by one of our own blocks), over the signature of Mr. H. M. Sayers. It will prove most satisfactory reading to everyone interested in the motor 'bus movement, for it is to all intents and purposes an appeal in *misericordiam*. It attempts to show that the natural spheres of the electric tram and the motor 'bus are so totally different that both of them may live like the two brothers, so pathetically described by Mrs. Hemans, who "grew in beauty side by side." For the tram, Mr. Sayers arrogates to towns, and wishes to persuade the motor 'bus (with the true pastoral spirit of Virgil in his Georgics) to relegate

in constructing it, whether with underground conduits or overhead trolley wires, with all the complicated system of feeders and connections required in a tram system? After this, that he should take no notice of the tendency of trams to congest traffic, and practically ignores the superior movability of the motor 'bus, is only what one would expect. If ever an institution were destined to win its way mainly by the short-sighted and illogical attitude of its opponents, it would surely be the motor 'bus movement.

Opening up the Turkish Empire.—The detestation entertained by the Turkish authorities, as indeed by nearly all Mohammedans, against the public employment of photography, is generally known, but people may not be so generally aware that the automobile is equally banned in the dominions of the Sultan. So that much praise must be accorded to the initiative and enterprise of Mr. R. L. Jefferson, F.R.G.S., who has arranged to travel *en automobile* to the Turkish capital. The authorities at first refused to grant the necessary permit,

We reported last week the fire which occurred at the premises of the Fiat Company, in Long Acre, when, as we pointed out, a more serious conflagration was avoided by the prompt use of the New Era Fire Extinguisher, which subdued the petrol flames most effectively. Our photographs above show (1) the Fiat premises shortly after the outbreak, and (2) the scene in Long Acre after the work of the Fire Brigade was finished.

itself to the country. In fact, Mr. Sayers desires to "rusticate" the motor 'bus. We fancy, however, the motor 'bus will refuse to be rusticated. Certainly if it is to be rusticated on the strength of the arguments brought forward by Mr. Sayers, a great injustice will be done to it. For the grounds on which he attempts to show that it cannot successfully compete with the tramcar will not hold water for a minute. Concerning the cost of fuel, Mr. Sayers, of course, makes it out to be in favour of the electric tram, but, even with the one-sided figures which he gives, he does not prove his case. The main cost of motor 'bus running he rightly attributes to tyre consumption, and he makes out a terrible indictment *re* expense of the motor 'bus from this point of view. Will it be believed, therefore, that while he compares iron tramwheels with rubber shod 'bus wheels, he makes absolutely no allowance for depreciation of the permanent way of tramcars, and no allowance for the enormous amount of capital sunk

but by the intercession of the British Ambassador to the Porte, Sir Nicholas O'Connor, an *irade* has been issued authorising Mr. Jefferson to pass the Turkish frontier, and instructing the officials *en route* to afford him every protection. Mr. Jefferson, who will be accompanied by a mechanic, starts next Wednesday from Coventry, and will cross Europe by way of Holland, North Germany, Austria-Hungary, Servia, and Bulgaria, and will reach Constantinople by way of Adrianople. The route will involve the "passage of the Balkans," where some difficulty will probably be experienced. The car selected by this adventurous traveller is a special two-seated 8-h.p. Rover. He has selected a one-cylinder car as being easiest to repair in case of breakdowns in the rough country which must necessarily be traversed. The body is so designed that the seats can be removed and the floor of the car used as a bed. We hope to be able to publish from time to time telegrams from Mr. Jefferson indicating the progress of his tour.

In our issues of April last, full details were given of the Wolseley petrol omnibuses, and amongst the illustrations then given were views of the chassis fitted with these makers' twin-cylinder engine. The above illustration shows a 4-cylinder chassis.

Digest of United States Patents.—All automobile engineers, patent agents, and people interested in the automobile movement will be glad to learn that Mr. J. T. Allen is about to issue a "Digest of United States Patents from 1789 to July, 1905," dealing with the subjects of *air, caloric, gas and oil engines*. The work will be uniform with the "Digest of U.S. Automobile Patents" already published by Mr. Allen, which has proved to be of so much value and usefulness to automobile and consulting engineers. The work, like its predecessor, will be divided into two portions, giving the drawings in the first half and corresponding abstracts of the specifications with claims in the second, and will be provided with copious indexes.

To Prevent Breaking the Law by Automobilists.—Part of the cyclist corps of the Automobile Association is being mobilised for active service on the Portsmouth Road between Kingston and Godalming. It is hoped to complete the arrangements by to-day, Saturday, after which day it is devoutly to be wished that the list of members of the Association will be augmented as surely and quickly as the number of "regrettable incidents" will decrease.

THE Directors of the Newbury Race Course, where the opening meeting will be held on the 26th and 27th instant, have made very unusual and complete provision for accommodating motor cars. A spacious garage has been erected and set apart entirely for automobiles. This will be under the charge of Messrs. Stradling and Plenty, Limited, of Newbury, who will be in a position to look after the cars during the racing, and will have an efficient staff of mechanics who will be equal to anything that may require attending to on the spot.

THE Isle of Wight Central Railway Company is suffering, according to the statements of Mr. T. D. Bolton, M.P., who presided at the half-yearly meeting, from motor car competition. Everything possible, he said, would, however, be done to combat the competition, and ended (as usual with chairmen under such circumstances) by stating that nothing need be feared. Perhaps the best method of combating the competition would be for the railway company to do practically the same thing, and itself run services of motor coaches over their existing line.

View, from above, of the Wolseley chassis for a 36-seated, double-deck omnibus. The 4-cylinder horizontal engine is clearly visible in this illustration.

Mr. Andrew Carnegie has selected for his use a 24-h.p. Wolseley Car, which has recently been delivered to him by the Wolseley Company, a photograph of which we now reproduce above. The body is of the Limousine type, the wheel base is 9 feet, and the tyres selected are Michelin with Shaw bands on rear wheels.

THE Chertsey Rural District Council recently commenced a campaign against the dust fiend to which we have so frequently referred. The expense is being equally divided between the Council and Mr. F. C. Stoop, of Byfleet, and the picturesque stretch of road, beautifully wooded on either side, stretching between Byfleet Corner and the western branch of the River Wey, has been selected for the experiments. A copious dressing with tar has been applied to the surface of the road, which was previously brushed smooth, and the tar applied in the hot condition by hand dippers from a portable heating apparatus similar to those employed for heating asphalt. The tar was then well brushed into the road surface, and the road scrapings, which had previously been brushed off, were strewed upon the top of the tarred surface. Since the operations were concluded the rain has removed this added layer of dirt, and the road now presents the appearance of a well asphalted surface, except that previous to the application it was somewhat out of repair and that there are in consequence a good many hollows, ruts and depressions which will certainly have the effect of preventing the tar treatment from wearing as long as it would do if applied to a newly made-up road. Time alone can show the value of the treatment, though it must be admitted that at present the condition of affairs looks promising, and the local ratepayers are quite sanguine that the treatment may ultimately prove not only pleasant but economical. The stretch of road in question, upwards of half a mile in length, has a nice easy slope eastwards, and is in consequence a stretch on which motor cars get up a good rate of speed, accompanied hitherto by very large clouds of dust. The present dustlessness, due to the tarring, is most satisfactory. The thanks of automobilists and all interested in the dust question are certainly due to both Mr. Stoop and the Council for their public-spirited initiative.

THERE was a rather funny case at Marylebone one day last week, in which Mr. A. F. Marston, a driver in the employment of the Grande Maison d'Automobiles (The Motor House) of Euston Road, was summoned for using a motor car on the public highway, the car not being registered in accordance with the Act. As a matter of fact, Mr. Marston was towing a finished chassis behind a finished motor car, the object being to see how the chassis ran before working it under its own power, and dealer's identification marks were affixed to the front of the towing car, and to the back of the towed chassis. Mr. Staplee Firth, who defended the case, stoutly maintained that the whole paraphernalia formed one vehicle, that the towed portion certainly was not a separate motor car, as it was not running under its own power, and that the towing was part of the process of testing the chassis after completion. Mr. Denman, the magistrate adjudicating in the case, appeared to be impressed by the arguments placed

before him, and finally dismissed the summons. An amusing feature of the case and illustrative of police methods, was provided by the fact that not only was Mr. Marston summoned, but also his employer, for that "he did unlawfully aid and abet, counsel and procure one Arthur Frederick Marston to commit an offence." Needless to say this absurd summons was also dismissed. When our police have time to get up such frivolous cases as these it is hardly to be wondered at that undetected crime is rampant in the Metropolis.

HIS MAJESTY THE KING is known to be a keen motorist, and the British-built Daimler car is his favourite. He has just ordered another car of this make, of 35-50-h.p., the same that achieved such great success at the Blackpool speed contest. This is the seventh car which the Daimler Company have constructed for the King. The body will be similar to the 28-36-h.p. which His Majesty at present uses, and it is hoped to have the car completed for the forthcoming Olympia Exhibition in November next.

The Right Hon. the Marquis of Salisbury, C.B., has just taken delivery of the 17-h.p. Hotchkiss Landaulette shown in our photograph, the carriage portion of this striking car being by Hooper.

THE Guildford magistrates netted the nice little sum of 100 guineas for the local rates by the fines imposed on motorists arraigned before them last Saturday in the Surrey county town.

CERTAINLY "General" Booth knows how to make full use of the automobile for bold advertisement. He has just concluded an evangelistic tour of 34,400 miles, and on his return to London, where he was welcomed at a great meeting at the Albert Hall, instead of making the usual prosaic entrance to the platform, he appeared thereon in the car in which he had made this record tour. Of this great effort, 2,250 miles were covered in England and Scotland in a period of five weeks and four days.

THE calibre of some of our magistrates is amusingly illustrated by a case which recently came before the Yarmouth Police Court, in which Mr. de Caux, a J.P., and apparently a member of the Yarmouth Bench, caused

Mr. Sidney Adams to be summoned for furiously driving a motor car. It was so dark at the time that Mr. de Caux could not locate the part of St. Peter's Road at which the alleged offence took place, but in spite of the darkness he was certain that the defendant was coming along at a most dangerous pace. Mr. de Caux is evidently one of those people who can always see a motor car going too fast, even when they cannot see much beyond their own noses. The case was dismissed.

WE referred recently to the case of a policeman who had become celebrated as a maker of violins. It appears from a daily paper that Croydon boasts a constable who is the inventor of a non-fouling ignition appliance for motor cycles. It is to be hoped that the irony of circumstances never compels this inventive "limb of the law" to lie in wait for motor cyclists in the Surrey hedges. Presumably motor cyclists will ascertain the style and title of his invention, and if falling victims to police traps in the neighbourhood of Croydon, may be relied upon to state that their bicycles are fitted with the same. If after that, they are compelled to appear in police courts, it will certainly be evidence that *esprit de corps* is sadly lacking in the force.

AN example of what the modern automobile can accomplish when put to it, was provided by a sensational incident which is reported from Paris. Two ladies (Mrs. J. R. M. Dillon and her mother) missed the boat train to Cherbourg at the St. Lazare Station. Someone suggested that they should apply to M. Charley, of the Mercedes depot, to provide them with a machine to take them by road, and after some hesitation M. Charley consented. The 350 kiloms. (217 miles) to Cherbourg was covered by the 40-h.p. Mercedes in just over 5½ hours, the time accomplished by the Cherbourg express being 8 hours, and the ladies were in time to board the Atlantic liner which was still in the roadstead.

MOTOR HARVESTING BY NIGHT.—A remarkable scene was witnessed near the Great North Road recently, when a demonstration with the Ivel Agricultural Motor was given on Mrs. Kendall's farm near Biggleswade. The object was to demonstrate that an agricultural motor can be used by night as well as by day. The motor and mowing machine were fitted with "Castle" acetylene lamps, and it was clearly shown that by this means harvesting could be continued throughout the night as easily and satisfactorily as during the day. Our photograph shows the operation in progress, when the Ivel motor hauled two 6-foot mowing machines, and in 3 hrs. 35 mins. cut 15 acres.

WE hope the police evidence in the prosecution which recently came up for hearing at the Haywards Heath Police Court against the London and Brighton Motor Omnibus Company was mistaken in the speed. It was alleged that the motor 'bus executed a sprint (of course through a police trap) of 32 miles an hour. The vehicles are not geared for any such speed as this, and if such a speed was really established by more reliable methods than the police usually adopt, the vehicle must have been running down a long incline. In any case, however, it must be admitted that such high speeds for vehicles of the weight of a motor 'bus are to be thoroughly deprecated.

IN the article in the *Badminton Magazine*, to which we referred last week, Major C. G. Matson wrote: "All I can say is that no prospective legislator sees me burn any petrol on his behalf unless he is sound on the motor car question." We hope that every automobilist will adopt this as his motto in regard to the general election which, whether it come this year or next, cannot now be very long delayed. The subject is engaging the attention of the daily papers, and a well-considered article in the *Daily Telegraph* points out that the concentration of motor cars which has distinguished by-elections, and has very often decided their results, will not be possible, at any rate to the same extent, when the general election is taking place. Still the use of motor cars at election times has had a very decided effect upon the electors, particularly on those classes who have never had, or who are not likely to have for some time, other opportunities of indulging in the new locomotion. The recognition of the value of the motor car for election purposes by the daily press, prompts us once more to impress upon our readers the great importance of putting to the motor car question above all others when considering to which of two rival candidates they will lend their car at election time.

EXAMINATION for Driving and Mechanical Proficiency Certificates will take place on the 28th instant at the Automobile Club, 119, Piccadilly, commencing at 10 a.m. Those who desire to avail themselves of this date should apply to the Secretary forthwith for particulars.

HIS MAJESTY KING EDWARD is reported to have had a narrow escape from a collision in driving from Buckingham Palace recently to King's Cross Station. A private omnibus came rapidly round a corner in front of the royal car, and it was only the great expedition of the King's driver in clapping on the brakes and pulling up with remarkable suddenness that averted a catastrophe. The sudden stop threw some of the arrangements of the car out of order, but they were quickly adjusted, and the King resumed his journey with apparent unconcern.

It appears that Mr. Stephen Coleridge has been again compelled to write to the daily papers, as, owing to some misunderstanding, his letter, which we quoted, stated that the police "lied upon the wayside," when he really intended to say that they "hid by the wayside." Mr. Coleridge has explained the mistake, but he has omitted to take advantage of the neat rejoinder he might have made, that after all he was only mistaken in regard to the *place* where they "lied."

BRITISH EXPORTS AND IMPORTS OF MOTOR CARS, &c., FOR 1905.

NOTE.—For 1904 comparative figures see full table for the year in our issue for January 21st, page 91.

Imports.

1905.	No. of Cars and Value.	Parts Value.	No. of Motor Cycles and Value.	Parts Value.
January ...	362	£ 149,578	57	£ 1,842
February ...	431	£ 195,978	102	£ 3,748
March ...	560	£ 239,091	152	£ 5,369
April ...	544	£ 225,012	192	£ 6,477
May ...	728	£ 327,008	280	£ 8,274
June ...	557	£ 259,359	211	£ 6,581
July ...	675	£ 277,738	212	£ 6,931
August ...	505	£ 230,568	116	£ 3,912
Total ...	4,362	£ 1,904,332	1,322	£ 43,134

1905.	Exports, British and Irish make.				Foreign and Colonial Re-exportation.			
	No. of Cars and Value.	Parts Value.	No. of Motor Cycles and Value.	Parts Value.	No. of Cars and Value.	Parts Value.	No. of Cycles and Value.	Parts Value.
January ...	77	£ 25,590	58	£ 2,026	50	£ 19,006	8	£ 214
February ...	62	£ 20,209	63	£ 2,389	79	£ 39,772	2	£ 54
March ...	49	£ 14,749	46	£ 1,471	36	£ 20,783	14	£ 290
April ...	55	£ 16,590	46	£ 1,459	38	£ 19,697	8	£ 369
May ...	55	£ 15,670	60	£ 2,181	17	£ 8,572	1	£ 60
June ...	59	£ 16,797	83	£ 2,286	20	£ 11,491	17	£ 512
July ...	59	£ 23,295	52	£ 1,791	50	£ 15,419	6	£ 177
August ...	88	£ 33,239	64	£ 2,177	75	£ 40,362	3	£ 105
Total ...	504	£ 166,139	472	£ 15,780	365	£ 175,102	59	£ 1,781

TOURIST TROPHY RACE.—The Vauxhall Car, which has a three-cylinder engine and a gear-box giving six forward and two reverse speeds. The gear-box primarily gives three speeds, but by providing an alternative drive to the lay-shaft through a different gear-ratio each "speed" is thus duplicated.

COMMERCIAL POINTS.

Motor 'Bus Tyres.—The life of tyres on motor 'buses is an all important question, and information respecting the actual performance of tyres in use on public service vehicles is accordingly of considerable interest. In this connection the Sirdar Rubber Company send us a reproduction of an official order received by them from the London General Omnibus Company, on which it is stated that a set of tyres on the front wheels of one of the company's motor 'buses have lasted 11,000 miles, a clear gain to the Sirdar Company, as we understand from them that the guarantee is for 10,000 miles.

We learn from Price's Patent Candle Company, Limited, that their special motor car oils are being used by quite a number of the vehicles entered for the Tourist Trophy Race, and that their motor oils are specially stocked in the Isle of Man by Messrs. Brooke and Co., Ramsey, Mr. J. R. Corlett, Douglas, and Mr. M. Hampton, Douglas. This information arrived too late for publication last week, but no doubt it should be of use to automobilists who are in the island for any lengthened period.

"Continental" Tyre Development.—The additional works being erected at Hanover will be completed by the end of the year, and will provide employment for about 800 new hands, mostly devoted to the manufacture of motor tyres. The company, we understand, also intend taking larger premises in London in order to cope with their increased business over here.

SOME splendid specimens of high-powered racing and touring cars may at the present moment be seen at the show-rooms of Messrs. J. E. Hutton, Limited, 81-83, Shaftesbury Avenue. The cars specially on view are: 90-h.p., 70-h.p., 60-h.p., 40-45-h.p., 28-32-h.p. Mercedes, and 50-h.p. Panhard. As these represent the most recent types turned out by the works and embody the latest improvements, motorists who are looking out for chassis capable of taking heavy touring bodies comfortably, should pay Messrs. Hutton an early visit.

NEW COMPANIES REGISTERED.

[Taking powers to manufacture or deal in motors, motor cars, or accessories, either as their principal or part of their objects.]

Barry Motor (Limited), 9, Gracechurch Street, E.C.—Capital, £20,000 in £1 shares. Object, to manufacture and deal in the Barry motor. First directors, W. A. Richards, A. Richards, and R. H. Richards.

Carnarvon Motors (Limited).—Capital, £1,000 in £1 shares.

Chenard-Walcker Motors (Limited), 38, Long Acre, W.C.—Capital, £10,000 in £1 shares (5,000 preference). First directors, D'Arcy R. Baker, V. H. Miller, and G. Oakey.

J. C. Coates, (Limited), 65, Manchester Road, Burnley.—Capital, £1,000 in £1 shares. Object, to acquire the motor and bicycle business of J. C. Coates, 65, Manchester Road, Burnley.

Flewitt (Limited).—Capital, £5,000 in £1 shares. Object, to acquire the business carried on by J. A. Flewitt, of makers of carriages and motor and vehicle bodies, &c.

Hartenfeld, Son, and Company (Limited), 259A, Oxford Street, Manchester.—Capital, £1,000 in £1 shares. Object, to carry on the business of manufacturers and repairers of self-propelled or other vehicles, and accessories, &c.

Hay Motor Company (Limited).—Capital, £5,000 in 4,500 ordinary shares of £1 each and 10,000 deferred shares of 1s. each. Object, to adopt an agreement between W. G. Hay and E. Hart, and to carry on the business of manufacturers of motor cars, cycles, &c.

Horn, Littlewood and Company (Limited), 30, North Street, Gainsborough.—Capital, £10,000 in £1 shares. Object, to acquire the business of mechanical engineers, manufacturers of

motors, motor cars, &c., carried on at Gainsborough, Lincolnshire, as Horn and Co., and to carry on the business. First directors, A. A. Horn and R. W. S. Littlewood (works manager).

Motor Vehicles (Limited), 22, Broad Street, Bury.—Capital, £50,000 in £10 shares (2,500 five per cent. preferred). Chief Objects, to carry on the business of purchasers and letters to hire of motor lorries and vehicles, &c., with power to manufacture motors, rolling stock, and conveyances of all kinds. First directors (all directors of the Lancashire Wagon Company (Limited), A. Smethurst, J. H. Peacock, J. Battersby, J. P., E. Burgoyne, and T. F. Bradbury.

Norman Gears, (Limited).—Capital, £5,000 in £1 shares. Chief object, to adopt an agreement with E. J. de Normanville, H. J. Lee, W. P. McCarthy, and R. Hill, and to carry on the business of makers, repairers, and hirers of motors, motor cars, &c.

Samuelson and Company (Limited).—Capital, £100,000 in £5 shares. Object, to acquire the business of ironfounders, engineers, motor car and locomotive builders, carried on by Samuelson and Co., Limited (incorporated in 1888, and now in liquidation), at the Britannia Works, Banbury, Oxon.

Transvaal A.C. Reliability Trials.—The 12-14-h.p. 4-cylinder 1905 type Gladiator, which secured the cup and gold medal of the club in this event, travelled the whole distance of 210 miles, we learn, without a stop of any description. The course extended from Johannesburg to Schoeman's Drift, *via* Potchefstroom, and thence back to Johannesburg. A win in a trial of this sort is particularly gratifying, considering the many rough stretches, called roads in South Africa, which have to be taken during the run, and which have a nasty knack of locating any weak spots which may inadvertently exist.

BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

8914. 27th April, 1905. Improvements in Valve-Gear for Explosion Engines. James Melles, 21, Bahnhofstrasse, Brieg, near Breslau, Germany. In the known combined lift and rotary valve-gear in which the rotary valve acts as the controlling element, and the lift valve protects the rotary valve during the period of pressure in the cylinder, the rotary valve opens the exhaust port only when the lift valve is raised so that a throttling of the gases previously exhausted takes place. In this valve-gear the lift valve serves as the controller, and the rotary valve as the cut-off for the inlet and exhaust ports. There are six figures. Fig. 1, is a section of the improved valve-gear. The bevel pinion, 1, transmits movement in the ratio of 1:2 to the bevel wheel, 3, rigidly mounted on the hollow rotary valve spindle, 2, so that the rotary valve, 4, is uniformly rotated. By means of the tappets, 5, on the wheel, 3, the socket, 6, which is displaceable on and surrounds the lower part of the valve-rod, 7, is rotated, and moves over the roller, 9, mounted on the arm, 8. The valve-rod, 7, passes through the

cut through it which register with the inlet, 16, and the exhaust outlet. During the expansion of the ignited gases in the cylinder the rotary valve, 4, opens the exhaust port, 15, and shortly before the termination of this stroke, the lift valve, 10, is opened, and the burnt gases can freely flow out through the exhaust port. At the end of the following exhaust stroke the port, 15, is closed by the rotary valve, 4, whereupon at the dead point for the next suction stroke the inlet port, 16, is opened.—August 24th, 1905.

20861. 28th September, 1904. Improvements in Epi-Cyclic Change Speed and Reverse Gearing. E. J. de Normanville, 6, Clarendon Crescent, Leamington, H. J. Lee, Roselands, Ellys Road, Coventry, and A. Freen, Duryea Works, Widdington Road, Coventry. This invention has for its object to provide an epicyclic gear capable of being cheaply constructed, and adapted to give two or three speeds in a forward direction and a constant speed in a reverse direction. There are three figures. Fig. 1, is a longitudinal section of a three-speed and reverse.

Apertures are formed in the disc, a^2 , for the admission of a series of three broad intermediate planetary pinions, f . In conjunction with the annulus, i , a lateral extension, i^1 , is formed for engagement by a suitable clutch as k . Between the pinions, c , and upon supporting pins, d^1 , are the intermediate pinions, f , which are adapted to gear with the pinions, c , and also with the loose wheel, g , and an annulus, i , mounted upon the carrier discs, c and c^1 . When the high speed forward is required, all the brakes, m , n , and o , are released, and the annulus, i , is locked to the shaft, h , by the engagement of the clutch, k , with the extension, i^1 ; the independent rotation of the pinions, c and f , upon their pinions, d and d^1 , being prevented, the mechanism revolves as one. For obtaining the second or intermediate speed the clutch, k , is withdrawn from engagement with the portion, i^1 , of the annulus, i , and the wheel, g , is held by the brake, o , the annuli, i and i^1 , being free. The pinions, c and f , now rotate upon their pins, d and d^1 , and also around the axis of the shafts, b and h . The shaft, h , rotates at a slower rate than that of the driving shaft, b . For obtaining the slow speed, the wheel, g , and annulus, i , are freed, and the annulus, i^1 , held by the brake, m . The pinions, c and f , rotate round the shaft at a slower rate than in the second speed, and a reduction is effected in the speed of the shaft, h . By releasing the wheel, g , and annulus, i , and holding the annulus, i^1 , a reverse rotation of the shaft, h , is obtained.—August 24th, 1905.

Patent Specifications Published.

Applied for in 1904.

Published September 14th, 1905.

- 11,753. F. H. SMITH. Intl. combn. engines.
- 17,960. DUGALD CLERK and others. Intl. combn. motors.
- 18,193. C. B. REDRUP AND W. A. RICHARDS. Intl. combn. engines.
- 18,607. F. REAGH. Cooling cylinders.
- 19,078. G. H. MORETON. Foot rest and pedal gear lock for motor cycles.
- 19,784. C. CHALLINER. Motor cars.
- 22,504. H. S. HELE-SHAW. Speed and reversing gear.
- 22,518. W. G. LEWIS. Motor vehicles.
- 22,644. T. B. BROWNE AND F. L. MARTINEAU. Motor vehicles.
- 22,645. T. B. BROWNE AND F. L. MARTINEAU. Intl. combn. engines.
- 22,935. S. RUSSELL. Lamps.
- 23,637. J. B. BROOKS AND J. HOLT. Seats.
- 23,653. A. DOUGILL AND T. TANGYE. Friction driving mechanism.
- 23,843. MATHER AND PLATT, LTD., and A. E. L. CHORLTON. Intl. combn. engines.
- 24,480. H. WINDHOFF. Coolers.
- 24,704. A. DOWNS. Variable speed gear.

spindle, 2. By the rotation of the socket, 6, the valve, 10, is raised when a projection, 11, on the cap slides on to or over the roller, 9. The projection, 11, extends for a distance of more than 180° around the circumference of the socket, and owing to this and to the fact that the gear is operated in the ratio of 1:2, the lift valve, 10, is caused to remain open during a whole rotation of the crank-shaft, that is to say, during the exhaust of the burnt gases and the suction of a fresh charge. As soon as the projection, 11, on the socket leaves the roller, 9, the lift valve, 10, is closed by a spring, 12. The cylinder or valve chamber is provided with water channels as at 13 for cooling purposes, and the sparking plug is inserted in the aperture, 14. The valve, 4, has ports

ing gear. A central driving sun wheel, a , is mounted upon or formed with the driving shaft, b . The sun wheel, a , is arranged to engage one-half of a series of three broad planetary pinions, c , rotatable on pins, d , having their extremities secured within carrier discs, c and c^1 , respectively. The carrier disc, c , is loosely mounted upon a sleeve, f , with which is secured a central sun pinion, g , whilst the carrier disc, c^1 , is secured to the driven shaft, h . Around the planetary pinions, d , and preferably in the same plane as the central wheel, a , is disposed, an internally toothed wheel or annulus, i , with which the pinions, c , engage. The annulus, i , is supported upon the carrier disc, c^1 , and a supplementary disc, c^2 , mounted upon the pins, d , of the pinions, c .

The Automotor Journal, September 23rd, 1905.

THE AUTOMOTOR JOURNAL

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SEPTEMBER 23RD, 1905.

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[Weekly, Price 8d.
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TOURIST TROPHY RACE.—The results of the Race at a glance. These four scoring boards, which were at the finishing point, are shown in our photographs as they appeared after the Race, and indicate very clearly the times and place in each round of every competitor. The arrangement was admirably carried out, and the figures were exceptionally and delightfully clear at a considerable distance. The identification of the cars by the official numbers is easy from the table given elsewhere in this issue of the Journal.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Sept. 23 ...	Motor Cycle Hill Climb (Hertfordshire A.C.).
Sept. 23 ...	Motor Cycle Hill Climb (Sheffield A.C.).
Sept. 27 ...	Henry Edmunds Hill-Climbing Trophy Race.
Sept. 28-29-30	Motor Boat Burnham-on-Crouch (B. M. B.C.).
Sept. 30 ...	Auto Cycle Club Race Meeting, Crystal Palace.
Oct. 7 ...	Albert Brown Cup (Motor Cycling Club).
Oct. 7 ...	Scottish A.C. 100 Miles Run.
Oct. 14 ...	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17	*Quarterly 100 Miles Trials.
Nov. 17-25 ...	Society of Motor Manufacturers and Traders Exhibition at Olympia.

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

The Tourist Trophy Race.

THE Tourist Trophy has been run and won, and there will be few found to deny that it has proved a splendid success, and when we say that we say a great deal, for the event was an innovation in automobile competitions, and it is a splendid testimonial to the management, organising powers, keen judgment, foresight, and, we might add, enthusiasm of the responsible committees, that the event of which the rules and leading features presented so many points of novelty should have been carried out without a hitch.

It will be a considerable time before it is possible to sum up and adequately realise all that the race has taught us, but some of its more obvious lessons are touched upon in the columns containing our report. One thing it has certainly shown, as we always said it would show, that it is possible to arrange an event for tourist vehicles that shall be won at a pace not outrageously in excess of what tourist cars are ordinarily called upon to do, and yet shall at the same time present all the attractive features, all the excitement and all the thrilling interest of a great race. Many people had been going about wagging their heads and saying that it would be a dull affair, a glorified consumption contest or reliability trial condensed into one day. These gloomy anticipations, needless to say, have been thoroughly falsified. Of course the element of enormous speed was absent; but no one who was on the course and who watched the proceedings with care—and there was a fine muster of

spectators representative of the general public—can refuse to admit that all the elements of interest which a race should display were present.

A Misapprehension to be Guarded Against.

THERE have been a certain number of accidents, and some people seem disposed to say how dreadful it would have been if the cars had been able to run at Gordon-Bennett speed. Well, for one thing, that was, of course, impossible under the conditions, but at the same time it should be borne in mind that certain other of the conditions under which the race was run, and which can and will be easily altered in the future, were the direct cause of the accidents which did occur. We refer particularly to the regulation by which competitors were compelled to carry sand bags as ballast instead of actual passengers. The sand ballast proved to be a most dangerous occupant of the car. At every turn it tended to swing the vehicles round, having no automatic adjustability of its own, and being of a semi-fluid nature, tended to shift in the wrong direction at exactly the wrong time. We do not expect to see sand ballast introduced again, so that a number of the accidents which did take place to the cars may be looked upon as merely resulting from imperfect experience of this class of competition, and will be obviated in the future. Another contributory cause was doubtless the stripping process necessitated by the ill-advised maximum weight limit of the chassis—the objections to which we have from the first strenuously insisted upon. These accidents, however, will probably be found to have brought their compensations, for their occurrence has certainly enabled manufacturers to ascertain the limits which can be safely approached in *everyday* touring car construction, and the public will at least have learnt that accidents, occurring with such vehicles as these, by no means necessarily result in injury to the occupants.

A Model Event.

THE Tourist Trophy Race, even as held under the regulations prevailing this year, has shown that this is just the type of competitive event which provincial clubs may well be able to copy in the future with advantage to themselves and the industry, for it will afford great interest to amateur drivers, and will have an invaluable educational influence on them. This is what the industry really requires for more than one reason. It is much better for manufacturers that private car owners should hold their own non-trade events, and that there should only be one great annual contest for which they (the manufacturers) would feel called upon to enter. Hitherto, the leading events of the automobile year have been of such a kind, and the general position of affairs has been such, that many manufacturers have been practically compelled to compete in self-defence. It has often been questionable whether the results have compensated them for the great expense and trouble involved. It is scarcely questionable at all that the effect in practically expelling amateurs from such competitions has been deleterious to the automobile movement. The majority of makers, therefore, would probably welcome the permanent establishment of a single great annual competition such as it is to be hoped the T.T. will become, which will bring out, as no other event yet held has done, the real relative values of the competing vehicles.

The event on the whole has shown—as we all along

maintained it would—that racing may be reduced to a practical form, that a good, interesting, and even exciting race can be carried out on useful lines, and be made to provide much of the information which has hitherto been only obtainable from a lengthy reliability trial. And it has shown that this can be done with tourist cars in everyday trim and under touring conditions. This means that there is now a good chance of entirely revolutionising automobile contests, and of making them applicable to real motor cars rather than to mere speed machines.

Woolgathering.

THE Motor Car Acts have been utilised to protect all sorts of abuses, nuisances, busybodies, and local authorities, but even a Magistrate has at last kicked at the determined attempt which was recently made at the South Western Police Court, to interpret the Motor Car Acts as designed to protect *sheep*. Mr. Charles Hines, of Westlands, Wandsworth, is the owner of a certain motor car. On a recent occasion his driver was driving the same along a certain road, and had the misfortune to collide with one of a drove of sheep, with fatal consequences to the unhappy ovine with which he came in contact. The police accordingly called upon Mr. Hines to give them information necessary for prosecuting his driver. This he very naturally and properly, justifiably and legally refused to do. Mr. Firth, who defended him, pointed out that the Motor Car Acts were intended for the protection of the public, and that it was at least doubtful whether *four-legged* sheep should be included in that designation. The same view was taken by the magistrate, and he accordingly dismissed the case, saying that he had no alternative, as Mr. Hines had chosen to stand upon his legal rights. We should like to know upon what else Mr. Hines, under such circumstances, could be expected to stand. This is just the very thing that one wants to know, and the Metropolitan Magistrate accordingly, like the Delphic oracle, refuses information about it.

Humanising Effects of the Motor 'Bus.

THE number of motor 'buses conveying the population of London to and from their business has gone on gradually increasing till now there are upwards of 100 in regular and steady service. The travelling public now knows well what the motor 'bus can do for it, and how much more expeditious it is between two points at which it touches than any other form of public conveyance, and there is no doubt that the superior speed of the motor 'bus to that of even the fastest hansom is having a very serious effect upon the cab industry of the Metropolis. It is satisfactory, therefore, to learn that the drivers of horse 'buses who have been sufficiently enlightened to become "converted" to the motor 'bus, and have exchanged the "ribbons" for the steering wheel, are reaping the rewards of virtue and enterprise. With somewhat superior pay to that enjoyed by the ordinary horse 'bus driver, the motor 'bus driver's hours are considerably shorter. The horse 'bus driver, it appears, is subject to the horrible slavery of driving sixteen hours a day on alternate days and nine hours a day on the days between. The motor 'bus driver gets off with eight hours a day, and has, consequently, as a representative of the profession has recently observed, time to get to know his family by sight, a privilege which is denied to the driver of most horse 'buses, whose children have frequently grown up to mature years without

making the acquaintance of the author of their being. This is one of the subsidiary advantages which the motor 'bus is bringing with it. Every motor 'bus which replaces a horse-drawn 'bus is relieving not only a team of twelve unfortunate 'bus horses from the most painful form of slavery, but is affording similar emancipation to the "converted" driver, and after all it is a certain benefit to the State that our 'bus drivers should have sufficient leisure to become personally acquainted with their families. It is only a small point, no doubt; but it is illustrative of the improved conditions which the substitution of mechanical for animal traction is introducing all round.



The Motor Barge—and its Opponents.

THIS is a wonderful country. Its co-efficient of inertia or "reluctance" is probably greater than that of any country on the globe, we refrain from adding the solar system. Last week we commented on the well-meant attempts of Sir Christopher Furness to impress the port of London with the value of the motor barge, and we suggested that the reason that motor barges were not practically in visible evidence on the Thames was because no manufacturers had laid themselves out to build them. But we must admit that we have experienced a shock on finding that the good people of the port of London are not merely ignorant of the advantages of the motor barge, but are actually convinced of the superior advantages of the oar and sail-propelled vessels, which do not greatly differ from those with which the Danes assailed the capital, and are certainly not a whit better than those on which Geoffrey Chaucer shipped his bales of hemp. The *City Press* has given hospitality to the opinions of one of these gentlemen. It is explained that the oar-propelled and sailing barge is superior on the Thames, as compared for example with Hamburg, because there are no canals for the motor barges to ply through. One wonders whether this kind of "blatherskite" can really be expected to deceive anybody. Anyone who knows the port of Hamburg knows very well that practically the whole of the motor barge industry is carried on on the waters of the Elbe only, and that only exceptionally does a motor barge find its way into the canals which radiate from the Alster. It is the same silly old spirit which has prevented progress in so many departments, and belongs to the class of prejudice which is doing more than anything else to hamper Great Britain in the difficult game of international commercial competition which is now pressing upon her so hardly.



Helping the Cause.

FROM time to time we have pointed out various methods by which the automobile public can assist the Joint Committee which is preparing the automobilists' case for the Motor Car Commission. Foremost amongst these has, of course, been the provision of adequate funds, on which we have regularly and repeatedly insisted. Another point has been the importance of every private individual who has any information bearing on the great question in his possession forwarding it at once to the Joint Committee. We have now to thank the Scottish Automobile Club for a further departure, enforcing another of the suggestions we have made, viz., the organised co-operation of local automobile clubs

with the Joint Committee. The Scottish Club (following the example of the A.C.G.B.I. and Motor Union) are sending out a circular to all their members covering a number of important heads, in regard to which information is desirable, and requesting answers to them as far as the individual experience and knowledge of the members can supply them. The conclusions, in due course, will be placed at the disposal of the Joint Committee. The Scottish Club is to be congratulated on this departure, and we hope their example will be followed by all the provincial clubs in the country. There is no better way by which the necessary information can be made available for the Joint Committee than by a propaganda of this kind.



The Same Old Arguments.

APROPÓS of the labours of the Joint Committee, Mr. Claude Johnson has done good service in making extracts for the use of the Joint Committee from the debates which were carried on in Parliament when the last Motor Car Act was under discussion. These extracts cannot fail to be of value to the Joint Committee, for they will show that the same arguments which are now being put forward by all the opponents of the movement, were fully and even superfluously voiced in those debates. Looking at the situation from another point of view, it becomes only too painfully apparent that the prejudice which these discussions revealed is as rampant to-day as it was in 1903. Certainly the impression produced from reperusing these old debates is that while the anti-automobile Members generally professed to hold a brief for their constituents, they were actuated by a degree of virulence which could only be explained by considerable personal feeling. It is this personal feeling in individual Members of Parliament that is really more dangerous to the prospects of the movement than the more or less bovine opposition of agricultural communities, and it is this that our propaganda should be mainly directed to getting rid of. A great deal can be done by personal argument and persuasion, and we fully realise that the automobile Members of the House of Commons have been and are doing their best in this respect. Something might be done by local automobilists and the local agents of the Motor Union to influence opinion in constituencies as well, and if to the persuasive arguments of the automobile Members of the House of Commons can effectively be added (as we have often urged should be done) the promise that motor car support at the next General Election will only be forthcoming on any scale for those candidates who are progressive on the motor car question, an effective step will have been made towards winning the campaign.



Police Stop Watches, price 4s. 11d.—Much fun has been made from time to time about the stop watches used by the Surrey police, but even they have never cost less than about 20s. Cumberland, however, beats Surrey hollow in fundamental economy in these respects, as it transpired at a recent motor car case tried at Carlisle that the stop watch with which one of the police witnesses was furnished cost the exorbitant sum of 4s. 11d. After all, however, why spend more upon them? The watches are always started and stopped to work out at so many miles an hour, and a cheap watch can do that as well as a dearer one!

THE TOURIST TROPHY RACE.

TOURIST TROPHY RACE.—Mr. J. S. Napier winning the race on his Arrol-Johnston Car. Our photograph is taken just before Mr. Napier crossed the winning line.

If it were only for the contrast offered by a race for touring cars over the now famous Isle of Man course, which has hitherto been sacred to "pure speed," the Tourist Trophy event could hardly have failed to appeal to the motorists who visited the island to witness it. There was a certain mystery about the situation which everyone fully appreciated; at previous events spectators knew what they were to expect from the giants of the course, but here was a new state of affairs altogether. The prospect of watching some forty odd cars competing in what was neither a simple race nor a handicap, but in some respects an automatic combination of both, appealed to all alike and sustained an unabated interest in the event.

So much has been written and so much has been said about this ingenious new form of racing, that everyone was agog to know how it would all work out. To say that opinions differed would be to state the case mildly indeed. Rumours and assertions as to speeds attained, and fuel consumed on practice runs, were everywhere in the air, and in no two cases were these statements in any way capable of being made to agree with one another. The atmosphere was positively alive with diametrically opposed rumours, and a general spirit of good feeling and jovial rivalry prevailed both before and on the day of the race. Many more people attended the meeting than were present at the Eliminating Trials in May, but naturally a large number of the spectators were drawn from holiday

TOURIST TROPHY RACE.—The method adopted for getting the cars to the starting point, so that the measured quantity of fuel might in no way be encroached upon except during the actual Race. The car seen in our photograph is Mr. W. H. Astell's 15-h.p. Orleans, driven by himself.

TOURIST TROPHY RACE, 1905.—RESULTS.

Place.	Car and Driver.	Official No.	Time.				Total for Circuit (208.5 miles).	Average Speed for the Circuit.	Fastest Lap.		Position in the Race at end of each Lap.				Fuel.		Cyls.	Drive.	Speeds.	Tyres.	Chassis Price.	
			Per Lap (52.125 Miles).						Lap.	Speed.	1st.	2nd.	3rd.	4th.	Brand.	Surplus.						Miles per Gallon.
			1st.	2nd.	3rd.	4th.																
h.p.			h. m. s.	h. m. s.	h. m. s.	h. m. s.	h. m. s.	m. p. h.	m. p. h.	m. p. h.												
1	18 Arrol-Johnston (J. S. Napier)	53	1 32 36½	1 22 21½	1 34 7½	1 31 9½	6 9 14½	33.9	38.1	38.1	1st	1st	1st	1st	Sh	8.3	25.4	2a	la	Ct	650	
2	20 Rolls-Royce (P. Northey)	22	1 34 0½	1 33 33½	1 34 41½	1 32 6½	6 11 23½	33.6	37.2	37.2	2nd	2nd	2nd	2nd	Sh	6.8	24.8	4	la	Du	600	
3	14 Vinot Deguingand (N. Littlejohn)	52	1 34 30½	1 37 14	1 33 24½	1 22 38½	6 14 35½	33.4	37.9	37.9	3rd	3rd	3rd	3rd	Pr	2.6	23.3	4	cc	Mi	420	
4	18 Arrol-Johnston (E. J. Roberts)	54	1 36 46	1 37 14	1 38 56½	1 44 21½	6 36 58½	31.7	32.4	32.4	4th	4th	4th	4th	Sh	6.2	24.6	2a	la	Ct	650	
5	16 Rover (E. Courts)	49	1 38 47½	1 38 37½	1 44 9½	1 41 18½	6 43 53½	31.0	31.7	31.7	5th	5th	5th	5th	Pr	8.5	25.5	4	la	Ct	375	
6	16 Swift	25	1 46 44½	1 45 37	1 45 53	1 42 57½	7 1 12½	29.7	30.4	30.4	6th	6th	6th	6th	Sh	11.9	26.9	4	la	Du	450	
7	15 Orleans (W. H. Astell)	8	1 44 0½	1 48 39½	1 50 40	1 44 22½	7 7 42½	29.2	30.1	30.1	7th	7th	7th	7th	Sh	11.25	26.6	4	la	Du	450	
8	14 Argyll (W. P. Thomas)	18	1 49 53½	1 47 24½	1 47 29	1 45 38	7 10 25	29.0	30.6	30.6	8th	8th	8th	8th	Sh	6.25	24.6	4	la	Mi	415	
9	15 Orleans (T. Jenner)	9	1 41 28½	1 49 3	1 52 24½	1 56 56½	7 19 32½	28.5	30.9	30.9	9th	9th	9th	9th	Ca	9.45	25.9	4	la	Du	450	
10	18 Napier (C. Earp)	...	1 48 32	2 1 23½	1 48 52	1 55 28	7 27 44½	28.0	29.1	29.1	10th	10th	10th	10th	Sh	0	22.5	4	cc	Pa	650	
11	16 Standard (R. W. Maudslay)	32	1 49 24½	1 49 54	1 53 15½	1 55 28	7 28 21½	27.9	29.8	29.8	11th	11th	11th	11th	Ca	1.3	22.9	4	la	Ct	450	
12	16 Rover (E. W. Lewis)	48	1 41 40½	1 43 19½	1 52 26½	1 52 7½	7 41 23½	27.1	30.8	30.8	12th	12th	12th	12th	Pr	8.7	25.5	4	la	Du	375	
13	10 Peugeot (C. Friswell)	46	1 59 39½	2 0 50	1 59 43½	1 58 36½	7 58 54½	26.2	26.4	26.4	13th	13th	13th	13th	Pr	10.0	26.0	2	cc	Du	350	
14	15 Ryknieid (A. J. Clay)	...	1 57 43½	1 57 32½	1 59 39½	2 16 48	8 11 44½	25.4	26.6	26.6	14th	14th	14th	14th	Sh	2.6	23.3	3	la	Ct	450	
15	18 Napier (F. G. Cundy)	...	1 59 51½	1 52 49½	2 1 38½	2 23 37	8 17 10½	25.2	27.8	27.8	15th	15th	15th	15th	Sh	6.4	24.6	4	cc	Pa	650	
16	14 Dennis (J. C. Dennis)	36	1 57 51½	2 0 45½	2 7 10½	2 22 42½	8 26 43½	24.7	26.8	26.8	16th	16th	16th	16th	Ca	6.1	24.5	4	la	Ct	500	
17	20 Simms-Welbeck (R. Lascelles)	14	1 47 14½	2 14 56½	2 0 7½	2 46 48½	8 49 8	23.7	29.2	29.2	17th	17th	17th	17th	Sh	0	22.5	4	la	Ct	435	
18	14 Dennis (R. Downing)	...	2 18 47½	2 13 58½	2 5 55½	2 27 17	9 5 48½	23.0	3rd	25.0	34th	29th	23rd	18th	Ca	12.7	27.2	2	la	Ct	350	

The following Cars ran out of Fuel (94 gals.) before completing the full Circuit of 208.5 Miles.

	miles completed	1st	2nd	3rd	4th	5th	6th	7th	8th
14 James and Browne (C. L. Cottel)	203.5	2 1 13½	2 8 53	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½
16 Humber (J. Reid)	187.5	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½
20 Maudslay (W. H. Cox)	186.9	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½
14 Clement (E. H. Lancaster)	181.7	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½
14 Scout (J. P. Dean)	185.4	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½	2 2 20½
14 Dixi (K. Beireiz)	...	...	...	...	...	...	...	...	...
14 Argyll (J. Downie)	...	...	...	...	...	...	...	...	...

The following Cars abandoned the Race.

	Choked radiator	Bent axle on first round	Ignition coil trembler	Burst tyre, no spare	Damaged propeller-shaft coupling	Back axle from collision	Tyre troubles	Broken springs	Wheel from collision
18 Siddeley (S. Girling)	2 56 13½	1 55 20½	2 22 56½	2 21 11	3 26 57½	2 28 55½	2 35 45½	2 10 15½	2 19 31½
14 Wolseley (J. Hadley)	1 53 21½	2 22 56½	2 22 56½	2 21 11	3 26 57½	2 28 55½	2 35 45½	2 10 15½	2 19 31½
16 Minerva (W. C. Holloway)	2 7 45½	2 22 56½	2 22 56½	2 21 11	3 26 57½	2 28 55½	2 35 45½	2 10 15½	2 19 31½
15 Whitlock-Aster (C. Clench)	2 1 57	2 22 56½	2 22 56½	2 21 11	3 26 57½	2 28 55½	2 35 45½	2 10 15½	2 19 31½
12 Speedwell (A. J. Dew)	2 58 27½	2 52 59½	2 52 59½	2 52 59½	2 52 59½	2 52 59½	2 52 59½	2 52 59½	2 52 59½
14 Thornycroft (T. Thornycroft)	2 2 9½	2 2 9½	2 2 9½	2 2 9½	2 2 9½	2 2 9½	2 2 9½	2 2 9½	2 2 9½
14 Thornycroft (G. V. Baxendale)	2 35 45½	2 35 45½	2 35 45½	2 35 45½	2 35 45½	2 35 45½	2 35 45½	2 35 45½	2 35 45½
16 Humber (C. H. Cooper)	2 8 54	2 8 54	2 8 54	2 8 54	2 8 54	2 8 54	2 8 54	2 8 54	2 8 54
12 Vauxhall (A. J. Hancock)	2 10 15½	2 10 15½	2 10 15½	2 10 15½	2 10 15½	2 10 15½	2 10 15½	2 10 15½	2 10 15½
15 White (A. C. Kent)	2 19 31½	2 19 31½	2 19 31½	2 19 31½	2 19 31½	2 19 31½	2 19 31½	2 19 31½	2 19 31½
15 White (F. Coleman)	2 19 31½	2 19 31½	2 19 31½	2 19 31½	2 19 31½	2 19 31½	2 19 31½	2 19 31½	2 19 31½
16 Minerva (E. H. Arnott)	3 8 45	3 8 45	3 8 45	3 8 45	3 8 45	3 8 45	3 8 45	3 8 45	3 8 45
10 Darracq (A. L. Guinness)	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½
20 Rolls-Royce (C. S. Rolis)	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½
14 Speedwell (W. J. Warren)	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½	1 40 21½
9 Cadillac (F. S. Bennett)	20	20	20	20	20	20	20	20	20
10 Darracq (A. Rawlinson)	40	40	40	40	40	40	40	40	40

Tyres.—Ct = Continental, Du = Dunlop, Pa = Palmer, Mi = Michelin. Fuel.—Sh = Shell, Pr = Pratts, Ca = Castrol. Drive.—la = live axle, cc = side-chains, c = single chain. Cyls.—a = horizontal, with four pistons; b = horizontal; c = steam, double-acting, compound. Price.—Where in italics, price is for complete car.

makers already in the Isle, and there were fewer visitors who attended specially for the event than there would have been had the meeting taken place in this country. It is a pity, too, that this was so, for the island is a charming spot, and although Douglas may not offer many attractions by itself, it makes a very convenient headquarters from which to tour the island.

Douglas was, of course, the centre of interest on this occasion, for the race being run without controls divested Ramsey and other towns on the course of the

attraction which they possessed at the time of the Eliminating Trials. For three days prior to the event, all the cars were "parked" in a large field at the back of the town, where they were weighed, sealed and filled up with petrol by the officials in charge—details to which we refer later—and it was here that everyone congregated to watch these somewhat monotonous operations, which were not, however, without their humorous side, as provided by the vagaries of the quadruple weighbridge with its awe-inspiring gallows for hoisting the bodies in a scientific manner, and the imposing apparatus by which the club gave to each car the allotted allowance of fuel.

Before nine o'clock on Thursday morning, all the cars had been ignominiously dragged out to the starting point by horses, and as the time for the start drew near, the forty-two vehicles were ranged in double file, silently waiting their turn for the word to go. Compared with the deafening cannonade of the racers at Quarter Bridge last May, and the excitement as each lurched and roared in eagerness to be off, this might have been a funeral, for

Not a "fire" was heard;

Not a trembler's note,

would be an apt parody to describe it. Precisely at nine o'clock, Mr. Woollen, the official starter, concluded his first incantation, and the race began by Mr. C. S. Rolls releasing the brakes on car No. 1, which glided swiftly and silently down the steep descent on to the course. For a few seconds nothing was heard, but as the car passed out of sight round a bend, the clutch was slipped in, and the familiar sound of the engine reached our ears, and we knew that the Rolls-Royce had taken its first sip at the tank full of petrol which must last it for the whole run. So it was with the remaining cars. Some took every advantage of the hill by not starting

Weight of Cars in lbs.

Official No.	Chassis.	Body.	Official No.	Chassis.	Body.
1	1,550	340	28	1,599	332
2	1,576	339	29	1,592	331
3	1,573	346	30	1,563	398
6	1,323	334	31	1,592	347
7	1,442	319	32	1,581	301
8	1,521	367	34	1,595	303
9	1,549	350	35	1,579	454
10	1,595	270	36	1,600	334
11	1,598	251	37	1,599	312
12	1,579	262	39	1,561	366
14	1,387	320	40	1,574	314
17	1,502	383	41	1,584	313
18	1,499	393	42	1,588	528
19	1,585	338	45	1,586	278
20	1,341	257	46	1,564	298
21	1,597	277	47	1,589	218
22	1,565	290	48	1,471	257
23	1,565	267	49	1,360	360
24	1,559	423	52	1,595	233
25	1,595	317	53	1,572	303
27	1,562	260	54	1,588	323

TOURIST TROPHY RACE.—At the starting line. No. 1 car, Mr. C. S. Rolls' 20-h.p. Rolls-Royce, ready for the commencement of the Race. Mr. Clifford Earp is on his right, driving No. 2, Mr. S. F. Edge's 18-h.p. Napier.

Photo by Argent Archer.

their engines until they were well on the course, for the road is down hill all the way to Quarter Bridge; others let in the clutch almost at once; while Mr. Rawlinson even started the engine of his little Darracq in advance, and drove off at a great speed. The two White cars were also ready for work, with their "free" engines slowly turning, and emitting the peculiar, though hardly perceptible, "sh-sh" sound which is characteristic of steamers.

The best of good feeling prevailed among the competitors. For three days they had watched one another's cars being "signed, sealed, and delivered," by the authorities, and now they were free once more, each determined to make a sporting effort to win by going the fastest, and offering a suppressed prayer that an untimely failure of fuel might not nip their intentions in the bud while yet on the weather side of the winning post. Twenty-two and a-half miles to the gallon each, and every car had to run if it wanted to get round the full circuit, and as this included four climbs up Snaefell, prodigality in the use of fuel was not to be thought of,

so we will not inquire too closely into the opinion which Mr. F. S. Bennett formed of a pretty little miniature fountain, which he discovered had been in full play through the vent of his main petrol tank for some fifteen minutes preceding the start.

Hardly had the last car left when news of an accident to one of the Argyll cars (No. 17), driven by J. Downie, reached us. The Argyll had run into the wall of a house at the Ballasalla corner, it was said, and had sustained considerable damage. It was somewhat gloomy news to arrive so soon, and as a general move was made in the direction of the enclosure by the winning post, the impression that the inexperience of several of the drivers might speedily strew the course with corpses and wreckage began to gain ground. Starting the cars with intervals of one minute between each—instead of the two-minute intervals previously arranged—had taken under three-quarters of an hour, and even in the light of the numerous assertions by unofficial timekeepers that the course had at times been covered in "one hour twenty" on practice runs, no one seriously

TOURIST TROPHY RACE.—The run down on to the course from the starting point. Earl is seen just off on the 20-h.p. Simms-Welbeck.

expected to see the first car pass before half-past ten. At one minute to ten, however, a most extraordinary rumour spread like wildfire through the crowd—a car was seen on the road, and it was freely stated that Earp (No. 2) had passed Rolls (No. 1), and was about to finish the lap in the record time of "one hour dead." Considering that this would have been better time than was made by most of the racers in May, it was not altogether surprising that the credulous hopes of the excited spectators should be dashed to the ground when the car came closer and proved to be the "Pilot," which had been "doing" the course, so someone said, since seven o'clock in the morning.

After that little diversion, the onlookers settled down again, and, in the security of the belief that there were still a few minutes to spare before it would once more be necessary to crane their necks in endeavouring to identify an approaching car, began to study what manner of place it was in which they found themselves at the head-quarters enclosure. With the weather so gloriously fine, no pleasanter spot could have been desired than the large sloping field which commanded

a fairly good view of the course in both directions, and just a glimpse of the mountain road winding down Snaefell in the distance. Round about were numerous tents harbouring the time-keepers and officials, while banners proclaiming the names of tyres stood majestically in the background, and a large marquee in which the caterers held sway was not the least important item in the surroundings which contributed towards the general enjoyment of the event.

After a while, the news arrived that the 15-h.p. Orleans which had started ninth was first past the Bungalow, and at 10.47 the car sped past on its way to Quarter Bridge, followed within the next few minutes by its sister car, by C. Earp on the 18-h.p. Napier, and P. Northey on the 20-h.p. Rolls-Royce, the latter having averaged the very high speed of over 35 miles per hour during his first round. Almost immediately after these cars had passed, their times for the lap were painted up on the first of the large boards facing the enclosure, and from this they were diligently copied down by most of the spectators into neat little scoring-books which the Wolseley Company and C. S. Rolls and Co. had gratuitously provided

TOURIST TROPHY RACE.—The point at the bottom of the hill from which the start was made. The cars ran by gravity on to the actual course, at this spot. The car coming down is Mr. Pullinger's 16-20-h.p. Beeston Humber driven by Mr. C. H. Cooper.

TOURIST TROPHY RACE—Mr. Alexander Govan's 14-16-h.p. Argyll, driven by Mr. W. Parker Thomas, coming through Ramsey.

for the purpose. In batches of twos and threes the cars passed by, but still no sign of No. 1, and at last the news came that the first Rolls-Royce had smashed its gear. About the same time, information spread round that Mr. Tom Thornycroft had twisted a wheel, and although that intrepid driver is certainly capable of doing almost anything with his car, even his greatest admirers doubted his capacity to perform such a feat as buckling an *artillery* wheel.

But at last he hove in sight and the mystery was explained—his back axle had been bent beyond the off-side spring, and there was the wheel wobbling round for all the world as if it were buckled. At the time there was no intimation of the cause, for Mr. Thornycroft had evidently no intention of abandoning the race so long as the wheel remained as a support for the car.

By half-past eleven, nearly all the cars had successfully completed their first round, and information was beginning to trickle through the telephone as to the causes of delay to those which had not come round. The Wolseley Car (No. 10) had, it transpired, run into a hedge at a sharp corner and sustained a bent axle, and it was as the result of colliding with this car that the Thornycroft axle was bent.

Mr. F. S. Bennett, on his Cadillac, was reported to have broken two wheels, and according to his own account of the smash, this was due to taking one of the most dangerous corners of the course far too fast. In his jubilation at driving up a large part of the mountain on the top gear, he did not realise the speed at which he was approaching the turn; for a few moments the situation was dramatic, the spectators—who were in evidence all over the course—were divided in their actions, half of them cheered as they had cheered no other car before, so pleased were they at his high speed, and the other half, who knew better, were endeavouring to express their fears by shouting a warning. But it was too late, for as the Cadillac swung round the curve its two near side wheels broke through at the hubs in rapid succession and the car lurched over on to the ground, but happily without inflicting any injury to its two occupants. Mr. Bennett was not alone in being put out of the race from broken wheels even in the first round, for the Speedwell car (No. 7) and Mr. Rawlinson's Darracq (No. 40) were reported to be in the same plight. The sudden appearance of the Argyll car (No. 17), however, came as a pleasant surprise to all, and it gave some hope that the

TOURIST TROPHY RACE—The 20-h.p. Simms-Welbeck coming up the course out of Ramsey.

TOURIST TROPHY RACE.—At Ramsey. Mr. Percy Northey on the 20-h.p. Rolls-Royce car just about to take the right angle turn at Ramsey.

reports of other cars broken up *en route* might also prove exaggerated.

Between the end of one round and the beginning of the next, there was not long to wait, and the time was fully taken up by comparing the times of the various competitors, which by this had nearly filled No. 1 of the large "telegraph" boards shown in our frontispiece. By this it was seen that the Arrol-Johnston car (No. 53) was leading by about a minute and a half on the Rolls-Royce (No. 22), between which and the third car, No. 52 (Vinot), there was hardly half-a-minute difference in time. Further retirements were to take place during the second round; the other Darracq, driven by Mr. Lee Guinness, damaged its differential case through a skid at the "Bennett" corner, and one of the White steam cars (No. 28) broke a wheel at the Castletown corner; the other White, driven by Mr. F. Coleman, was also put out of the running through a broken pipe, the result, probably, of the "stripping" process to which that car had been subjected in order to pass the Clerk of the Scales. The 12-h.p. Vauxhall was also

missing, and presently information arrived that it had run into a tree and damaged a wheel; of the 16-h.p. Minerva (No. 37) no definite information was forthcoming, but a general sequence of bad luck was attributed to it, which included a bent valve-spindle, faulty ignition-plugs, and a loose cam. At the end of the second round, Mr. Guy V. Baxendale, on the other Thornycroft, gave up the race because of his bad luck with tyres, it having taken him nearly 5 hours to complete two laps. In much the same way that the Argyll turned up at the end of the first lap, the Wolseley car (No. 10) put in its first appearance during the second lap, and it then became known that the plucky driver (J. Hadley) had actually removed the bent axle, taken it to a forge to straighten it, and afterwards continued the race.

It was during the third lap that the first news of any car having exhausted its fuel supply reached the enclosure, where it was stated that the 14-h.p. Dixi (No. 42) was unable to continue beyond Ramsey. Most of the other competitors had passed the post up to time, but

TOURIST TROPHY RACE.—At Hairpin Corner, the bad bend above Ramsey. Mr. Percy Northey, who secured second place in the race, coming round this point on his 28-h.p. Rolls-Royce.

the 16-h.p. Humber (No. 24) did not turn up, and it was reported that the car had met with an accident, which resulted in a broken spring. The only other absentee was Mr. Tom Thornycroft, and everyone was thinking of all the numerous possibilities which could happen to a car with a twisted axle. Presently, however, Lord Russell came in on his 15-h.p. White, and told a graphic tale of how he had been following the Thornycroft car up the mountain when it was suddenly enveloped in flames. It was a horrid sight, said Lord Russell, who had hurried by, and pulled up in order to give assistance, but on looking round again he had found that the flames had disappeared, and no one was any the worse—it was only due to Mr. Tom Thornycroft "tickling" the carburettor, and to the petrol being squirted on to the hot exhaust pipe and ignited! But still this car did not appear in sight, and it was not until afterwards that the full story was unfolded, and then it was known that the bent axle was, after all, the true cause of the final stoppage. The undue strain caused the other half of the axle to separate from its spur wheel inside the differential casing, and the road wheel on that side proceeded, all unnoticed, to go on its own towards the ditch, gradually widening the "track" of the rear wheels until it extended for a considerable distance across the road. Then, when

tisans, who appeared to be perfectly certain of its ultimate victory. But there was still an interval of twenty-four minutes in which the Arrol-Johnston could win the event, and as this time decreased the first real excitement of the day began to be evident among the spectators. Everyone who could possibly procure a seat utilised it for standing on, and a constant watch was kept on the road in the distance for the first signs of an approaching car—and at last one came in view. At that distance, it was impossible to be sure of its identity at first, but soon the squat aluminium bonnet and low build of the new Arrol-Johnston car was unmistakeable, and as it mounted the hill and shot over the line everyone knew that it had won a hardly-fought race.

Third to arrive, was the Vinot car, which was only about five minutes behind the winner, and for this excellent performance it should be given full credit, for it was a standard chassis and had but three forward gears, so that it was naturally at a disadvantage compared with those cars which had four changes of speed. The other Arrol-Johnston secured fourth place, and a Rover car (No. 49) was fifth. A very noticeable and satisfactory feature is that each of the first five cars had established its relative position at the end of the first lap, and retained it unchanged throughout the race.

In all 18 cars finished, and full particulars of their

TOURIST TROPHY RACE.—Mr. Cyril C. Maudslay's 20-h.p. Maudslay Car passing at the foot of Snaefell.

the car went round a corner, the axle and its casing finally parted company altogether, and the car had to be abandoned.

Only twenty-eight cars were thus left in for the last lap, and of these the Siddeley, which was driven by S. Girling, gave up at the start on account of a choked radiator, which had been giving increasing trouble at every round. In other respects the car had run excellently, and the 65mm. [*sic*] Michelin tyres, which had been fitted to the front wheels, in order to reduce the weight, stood the strain wonderfully, and finished up without giving any trouble whatever. At the commencement of the last round, the Arrol-Johnston, No. 53, was only leading the Rolls-Royce, No. 22, by a little over a minute, and this advantage it lost by stopping to fix its silencer which had worked loose during the race. The Rolls-Royce car, however, was started a long way ahead of its rival, and it not unnaturally finished the race first, to the unbounded enthusiasm of its par-

running will be found in our carefully-compiled table. The clockwork regularity of Mr. C. Friswell's little Peugeot is worthy of special comment in these columns, as is the successful performance of the Napier and Orleans teams. Only one of the two Argyll cars finished, the other having come to grief through the damage sustained in the accident on the first round, which was finally responsible for shortness of fuel. The Maudslay, too, ran out of fuel, owing to distinctly indirect and unusual occurrences, for the engine literally swallowed its own throttle-valve and became a victim to dyspepsia; three times valves were changed in consequence, and driving "on the spark" naturally proved very uneconomical. The Wolseley car (No. 10) was unable to finish in time, owing to the delay caused by straightening the bent axle, though—like the Siddeley—it still had plenty of fuel for the journey. In comparing the performances of the cars which finished, by the aid of our table, we would draw attention to the

TOURIST TROPHY RACE.—Two views of the officials in the timekeeper's enclosure. Mr. T. H. Wooten, who is seen in both the pictures standing at the table, was not only in charge of the timing arrangements, assisted by Mr. A. V. Ebbelwhite and Mr. F. Straight, but also acted as starter.

column containing particulars of the miles per gallon run by each car, for, with but two exceptions, every car which completed the circuit had a quantity of petrol remaining in the tanks. Of these the two-cylinder 14-h.p. Dennis (No. 35) had over a gallon and a half to spare, and the 16-h.p. Swift almost as much.

In the evening, when everyone had once more returned to the hotels, opinions on the performances of the various cars and of the race itself were freely expressed. There is no doubt that the race was won at

a speed which far exceeded expectations, and there is just as little doubt that the favourable wind over the mountain was largely accountable for this. Regarding the race itself, the general opinion was extremely favourable, and especially did it prove an interesting and exciting event for the competitors. In a sporting competition, it was a genuine victory, and no one grudged the successful car its laurels; in fact, the only sign of feeling was a protest by a competitor, of which nothing more, however, was heard.

OFFICIAL ORGANIZATION AND INSPECTION.

The Preliminary Arrangements.

Prior to the race, three whole days were occupied by the officials in examining the cars to see that they complied with the rules, in sealing the petrol connections, in weighing the chassis with and without the body, in weighing the passengers and ballast, and in filling up the fuel tanks with the allotted quantity of petrol. On the Monday—the first of these three busy days—the time originally fixed for all cars to arrive in the field at Alexander Drive had been 10 a.m., but as a certain amount of misunderstanding had arisen, and comparatively few had put in an appearance, this time was extended to one o'clock. Each car on arrival took up

its appointed place with empty tanks in one of the two large tents forming the official garage, and by lunch time there were forty-two vehicles there. The six absentees—apart from the ten withdrawals previously announced—included the two Daimlers, the second Star, the Mors which was to have been driven by Miss Dorothy Levitt, one of the Swift cars and the Gladiator. This Swift was the vehicle driven by Mr. de Wilton which overturned at one of the sharp corners on the course during practice the previous week, and there was some uncertainty even up to the Tuesday as to whether it would be allowed to run. Mr. Harvey du Cros, jun., in the belief that he would get a day's extension from the officials, managed to have it repaired in marvellously short time,

TOURIST TROPHY RACE.—The 14-h.p. Vinot Car, driven by Mr. Norman Littlejohn, being signalled by Mr. Orde to stop on the completion of the 4th round, this car securing third place in the race.

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TOURIST TROPHY RACE.—The 14-h.p. Wolseley Car, No. 10, driven by Mr. James Hadley, just completing the 3rd round above Quarter Bridge.

and it was, we learnt, out on the road again in plenty of time to compete ; it was, however, not permitted to run in view of its late arrival. The Gladiator was withdrawn owing to damage sustained during the last day of practice on the course, when the brakes had to be applied with great force, suddenly, in order to avoid some cows on the road ; the foot-brake and a portion of the gear-box were injured in such a way that the necessary repairs could not be effected in time.

As a result of the first day's inspection by the officials, the petrol tanks on one or two of the cars had to be altered. For the purposes of the race, and owing to the unusually large capacity specified by the rules, special tanks had been fitted in the tonneau portion of the bodies, and these were objected to as not complying with touring car requirement. Both the Napier cars, and both the Thornycroft vehicles had their tanks removed from their original positions ; they were fixed beneath the front seats instead.

On the Tuesday, the four weighing machines constituting the special weigh-bridge were ready, and (once a start had been made) little time was lost in weighing each car with its body, and then each chassis. Horses were in attendance for hauling the cars to and from the tents, and the process of weighing went on gaily until dark, but was only completed the next morning. In most cases it was only a formality, but in one or two instances the chassis weight was found to exceed the 1,600 lb. limit, with the result that a stripping process was imposed on those competitors. Ultimately, all the forty-two cars successfully passed the clerk of the scales, Mr. Lyon Sampson, and the other assisting officials.

On leaving the scales, the cars were reassembled by their owners, and each competitor was allowed to test his petrol connections by driving the car for a short time in the field for this purpose. Tanks, petrol pipes and carburettors were then emptied once more, and the "sealing" officials for a while took possession. Every

TOURIST TROPHY RACE.—Mr. Percy Dean passing the Club enclosure on the 14-h.p. Scout Car which, owing to the unfortunate accident to the first Scout Car—recorded in a previous issue—had to be rapidly assembled in the shortest time possible for the purpose of this race. On the left will be seen the four scoring boards, one for each lap, which we reproduce on a larger scale as our Frontispiece this week, and on the right the Timekeeper's and Judges' tent will be noticed.

TOURIST TROPHY RACE.—The two Dennis Cars, Nos. 35 and 36, passing the Club enclosure above Quarter Bridge on their 3rd round.

cock, union or other fitting through which petrol could have been introduced surreptitiously into the fuel system was sealed, with the exception of the filling cap, prior to the official filling operation of the Wednesday, when the final seal was to be placed upon this fitting also. The work involved was especially arduous in the case of cars having a pressure-feed system because of the additional pipe-fittings and the hand-pumps, and indeed some cars appeared, when finished, to be bristling with wired-up parts and A.C. initials. This process lasted until dark both on the Tuesday and the Wednesday.

The filling-up process began about mid-day on the Wednesday, when $9\frac{1}{2}$ gallons of petrol was fed by means of special measuring apparatus into the tank or tanks of every competing vehicle. This quantity is approximately equivalent to an allowance of one gallon for every $22\frac{1}{2}$ miles, and was deemed by the club to be equivalent on the Isle of Man course to one gallon for every 25 miles of the London to Oxford road when dry. Up to this day, no announcement had been made as to the precise allowance that would be made for the race, but rumours had got about, and it was generally believed that a still greater quantity of fuel would be given. Nevertheless, there were amongst the competitors those who considered the actual allowance too liberal, as well as those who took a reverse view of the case.

Every competitor had been given the chance of specifying which brand of fuel should be obtained by the club for his car, and those who had not availed

themselves of this opportunity were supplied with "Shell" spirit. Two filling machines were in operation, and although the operation was slightly delayed by having to deal with various well-known brands—including Carless petrol and Pratt's motor-spirit—every tank had been filled and sealed by nightfall, and each car was ready for the fray on the morrow. During this final day of preparations, everyone but the officials themselves were excluded from the tents.

The Arrangements on *The Day*.

The A.C.G.B.I. are much to be congratulated both on the effective manner in which they overcame the many apparent difficulties of organisation around the entire course, and on the really phenomenal luck that crowned their efforts on the day of the race. Inadequate observation in the absence of official observers on the competing vehicles, delays at railway crossings, and the occurrence of serious accidents, were the chief troubles to be anticipated on this occasion. Each and all were carefully taken into consideration. Practically no car throughout the day remained out of sight of some official for more than a few minutes, for—apart from the observers stationed at all important points—many of the members of the Races and the Technical Committees were provided with official cars, which circulated over the entire course, and were able to swoop down on any competitor within a few moments if he ever came to a standstill from any cause whatever. The first of these

TOURIST TROPHY RACE.—Mr. Citroen's 16-h.p. Minerva just entering on its 4th and last lap.

Parcelling up and weighing the ballast for the cars.

Measuring the petrol. Showing the process of transference from the official measure direct to the car's tanks.

TOURIST TROPHY RACE.

vehicles—Lord Russell's White steamer—left the starting point a few minutes after the last competitor had been despatched by Mr. T. H. Woollen, the official starter, and this was followed at intervals by others, including another 15-h.p. White steam car, an Orleans, a Martini, a Dixi, Mr. Orde's Daimler, and the 6-cylinder Rolls-Royce car, which had been placed at the disposal of the officials for the whole week. These official cars also enabled the clerks of the course to personally attend to each crossing at train-time, in readiness to "time" the duration of any compulsory stops at the gates. Curiously enough, no car was even called upon to slow up for a crossing throughout the whole day, thanks partly to the smartness with which the gates were worked by the railway officials, and to the provision of two locomotives for every train. This extraordinary piece of luck, however, was only in accordance with the glorious fineness of the day, and the immunity of those on partly wrecked cars from any injury.

In the way of warnings to the drivers, blue flags and red flags, hung across the road, gave ample notice in advance of danger spots, while even the red cross flags, which denoted the positions of the 34 ambulance stations and first-aid units, doubtless served a somewhat

similar purpose. Telephonic communication was established between eight important points and the club enclosure, and thus all the various happenings of the day were soon known at headquarters. There, the four large "telegraph boards" were kept up to date to show the progress of the race, while other smaller boards served a similar purpose at other popular points in the island. By way of securing full details as to the times made over individual parts of the course, the stationary observers were, we understand, provided with special time sheets on which to keep the necessary records,

The Arrangements After the Race.

Immediately after the race was over, all those cars which had completed the full course returned with unbroken seals to the garage tents for examination, and the official "petrol" car—a Maudslay—set off round the course to dole out fuel to those competitors who were stranded for want of it. The first few cars that headed the list as winners were re-weighed, their seals were inspected, and the contents of their fuel tanks measured that evening, the remaining finishing cars undergoing a similar examination next morning.



POINTS FOR REFLECTION.

UNMISTAKABLY, the unanimous opinion of those who attended the race—public, manufacturer and competitor alike—was that it had proved a thorough success, and that this new type of contest for touring cars had justified in practice the hopes of its most ardent supporters. True, it was realised that in certain respects many very important improvements are called for in the rules, notably in abolishing or at any rate raising the maximum weight limit of the chassis, but there was no lack of testimony to the great value of the contest to the purchasing public and to the industry generally, and the enormous amount of useful knowledge that it has already brought about.

Non-freaks.

Although, moreover, it was evident, as shown by our special table last week, that certain modifications had been made in standard models to render them specially suitable for the race, yet it is not too much to say that in no previous event has there been less in the way of real "freaks"—certainly in no speed contest. The chief deviation from ordinary practice was in the gear-ratios of the change-speed-mechanism, many cars having an abnormally high top speed which very materially improved their racing performances. It, nevertheless, came as a great surprise to all that so many practically standard makes of touring cars of from 15 to 20-h.p.

TOURIST TROPHY RACE.—After the Race. Officials drawing oil and measuring the petrol remaining in the fuel tanks of the competing cars.

could travel at so high a speed on the allotted fuel allowance.

Weight Limit.

As regards the maximum weight limit for the chassis, we have all along pointed out the drawbacks of fixing this at so low a figure as 1,600 lbs., and have also questioned the need for imposing it at all. Nothing could bring the absurdity of this existing regulation more prominently forward than a glance at such chassis as the Thornycroft and the Standard, all parts of which were perforated in order to reduce weight. It is not as though extra weight could give any direct benefit in view of the fuel limitation, and it was palpably ridiculous to see the White steamers being stripped of useful parts, to the tune of about 75 lbs., merely to comply with an unreasonable regulation.

Sand Ballast.

The question of ballast is one which thrust itself prominently forward during the race, many and bitter being the complaints of the drivers in general. Sand bags constitute a kind of load which seriously hampers corner-taking, for the action of the sand is sluggish, and

it tends to prevent any quick recovery. It would seem that even lead would be preferable to sand, because it would at least be but equivalent to an extra heavy chassis or body, and could be fixed to give a lower and more stable centre of gravity. Neither, however, could, of course, give the same recuperative action that is instinctively provided by passengers. There is very little doubt but that the sand bags were responsible for the many broken wheels at the sharp corners, and for the bad skids that, in spite of dry roads, landed some of the cars in the hedge-rows.

Wire Wheels.

Incidentally, an impetus will doubtless be given to the adoption of wire wheels, at least for racing, for we believe there was no case in which any of the many cars fitted with them experienced wheel breakages.

Fuel Allowance.

Although it might appear as though a fuel allowance of a gallon for 22½ miles on the Isle of Man course had proved to be too liberal, it must be borne in mind that the tanks had to be filled on the previous day, when even the weather prophets were unsettled in their own minds,

TOURIST TROPHY RACE.—After the Race. The cars being re-weighed the morning after the Race by Mr. Lyons Sampson.

and no reliable forecast was available. Taking even one section of the course—that on the mountain road after the stiff climb from Ramsey—it so happened that the wind favoured the cars and allowed top gears to be used for quite a considerable distance, although just previously, day after day, it had blown the other way and prevented their employment along this part of the road. Similarly, it appeared from all accounts that even the dryness of the atmosphere, or some other external influence, had an advantageous effect on the fuel consumption, to say nothing of the time gained by the drivers through the absence of fog on the mountain and greasiness at the corners. The figures which will appear in the special article dealing with our own recent fuel consumption tests, show the enormous effect of wind resistance on power required as the relative speed of the car and the air increases, and it should be noted that the portion of the road referred to above was particularly exposed to the weather, owing to the high altitude.

Tyres.

It is only fair to the tyre companies to point out that although there were a few tyre troubles, yet such as there were could not be attributed to faulty manufacture, or to ordinary wear and tear. The strains imposed were so enormous and abnormal at times that it is a wonder the majority of them stood up as they did, particularly as, in several instances, ridiculously light tyres were fitted in order to reduce weight. When artillery wheels are being broken on not a few vehicles, it would be extraordinary if none of the tyres were to suffer from the tearing action imposed at sharp corners.

THE popularity of an event is easily gauged by the attitude of the general Press, and in the *Morning Post* Mr. H. Massac Buist has been in a particularly happy vein with his descriptive accounts of the meeting. The following extract from one of his articles is especially witty, but it is very characteristic of the general "atmosphere" prevailing before the race:—

"It don't rain in France when it do," was an English mechanic's description of the weather conditions prevailing about the time of the Herkomer Trophy in Bavaria last month, and the

cryptic utterance may be taken to apply with equal aptness to the present case. "You look like one of those seals they've got in the Gourde Glen," is a common greeting to a party of motorists on their return from a practice run with mackintosh coats all dripping and glossy. Should it rain to-morrow it may be needful to make as generous a fuel allowance as a gallon for every nineteen miles; though to credit half the tales the bulk of the competitors are telling would lead inevitably to the conclusion that it would not make the least difference to them if the Automobile Club officials should quite forget to dole out the petrol until the cars drew up at the finishing post. "As far as I can make out," observes one listener, "at present it's more of a lying match than a motor-car competition—one hour and twenty minutes to the lap, with four up and on twenty-five miles to the gallon! Why, Campbell Muir, who doesn't care a rap for corners, only made one hour eighteen on a 40-horse Mercedes fitted with a racing body." "One hour twenty," repeats his assertion more solemnly than ever. "Of course, you weren't using any petrol when you came up Snaefell," remarks Mr. Charles Friswell with his imperturbable smile. "As for me, I'm getting so niggardly in my old age that my poor little Peugeot positively gasps for want of petrol all the time. The last few miles of every round are a perfect agony. I keep thinking, 'We're done now, we're done now,' but my blower has another puff at it, and on we go—oh, he is a splendid chap, that, bless his lungs!" Says Mr. Lennox, with a twinkle, "Oh! the Manx air's wonderful. When my car came over it was a 10-horse, but now I've taken off the coil it gives fifteen easily." "Let the judges decide," says somebody, "though what they want them for I can't think. Without them the first man past the post on the petrol given him wins the trophy; with them it may be that the prize will go to the last man home. I'm prepared for anything—with the Automobile Club the only thing you know is that you never can tell." "Oh! I see what the Technical Committee's for," says Mr. Tom Thornycroft. "It's their job to go and count the number of stones on the hill-climb, and say, 'Hullo! half a teaspoonful more petrol here—there's a big brick!'"

MICHELIN non-skid tyres were used on the Wolseley car, and these were, we understand, the only non-skids used during the race.

CONTINENTAL tyres being fitted to the winning car, Messrs. Arrol-Johnston consequently secure the One Hundred Guinea Cup which the Continental Tyre Company offered in connection with this event.

Owing to the great pressure upon our space, we have been compelled to hold over until next week the continuation of our special series of articles dealing with the leading aspects of the Tourist Trophy type of Race, and giving the results of our own practical tests.

A misapprehension to Mr. Ernest de Wilton's 10-h.p. Swift Car, entered for the Tourist Trophy Race in the Isle of Man, was mentioned by us last week. In the photographs reproduced above, the nature of the accident can be realised, the smash being a very bad one. Owing, however, to the enterprise of Mr. Harvey du Cros, Junr., the repairs were effected within 24 hours by means of special workmen, and the requisite parts being sent from Coventry as instructed by telegram. The replacements included a new back wheel completely built up, two new spokes to the front wheel, both front and back axles trued up, frame trued, steering column trued and repaired, and all levers straightened. A new steering wheel with all control levers. A new fan was fitted, the radiator repaired, and the entire body rebuilt. In spite of this exhibition of quick repair, the car was disqualified by the Judges for not being in place in time.

THE WINNING ARROL-JOHNSTON TOURIST TROPHY CARS.

THE chief peculiarities of this type of car, one of which won the Trophy, while the other came in fourth, are to be found in the engine, in the control, in the steering gear, and in the wheels. Of these, the engine and its control are by far the most important so far as deviation from ordinary practice goes, for not only has it horizontal cylinders, but it is of a specially "balanced" type and is governed by a "hit-and-miss" device acting on the exhaust-valves. The steering gear itself is of the screw and nut type, and the steering heads for the front wheels are raked considerably instead of being vertical. All four wheels have wire spokes and are shod with $8\frac{1}{2} \times 10\frac{1}{2}$ mm. "Continental" tyres.

As our illustrations show, the engine is fixed transversely beneath the low bonnet in front, both it and the 4-speed gear-box being secured direct to the pressed-steel main frame. It will similarly be seen that the car is of the live-axle type, with a short propeller-shaft to drive it, and with side radius-rods to tie the axle to the frame. Between the engine and the gear-box, a multiple-disc clutch of the "Hele-Shaw" type is fitted within the fly-wheel, in such a way as to allow fan-blades to form the spokes of the wheel. Both cars were geared very high for the race, the winner (No. 53) running at speeds of about $9\frac{1}{2}$, 22, $31\frac{1}{2}$, and 45 miles per hour at normal

engine speed (800 revs. per min.). The gear-mechanism is based on the well-known "Mercedes" pattern, with one sliding member for the 1st and 2nd speeds, another for the 3rd and 4th speed, and a third for the "reverse"; on the 4th gear a direct drive is obtained. A spring-drive device is introduced between the propeller-shaft and the bevel-pinion, there are roller bearings throughout the car, and the usual foot and hand brakes are provided.

Turning our attention now to the engine, it should first be explained that there are two horizontal cylinders formed by a single casting, and that these are open at

The Winner of the Tourist Trophy Race—the 18-h.p. Arrol-Johnston (No. 53), which was driven by its designer, Mr. J. S. Napier. Average speed, 33·9 miles per hour. Fuel consumption, 25·4 miles per gallon.

both ends, and lie parallel with one another above the two-throw crank-shaft. The cylinders, which are close together, are fixed across the car, but the crank-shaft is placed longitudinally. Each cylinder has two pistons, the united stroke of which is $6\frac{1}{2}$ inches, and each combustion chamber is formed by the cylindrical space between the two pistons. Ignition occurs alternately in the cylinders, and thus an impulse is given to the crank-shaft during each revolution. Each impulse is, however, transmitted to the shaft, through special rock levers, by two connecting-rods travelling in opposite directions, both pistons being forced outwards simultaneously. To couple up the pistons with the two connecting-rods, one pivoted rock-lever is mounted in each side of the crank-

TOURIST TROPHY RACE.—View of the victorious Arrol-Johnston Chassis, which completed the circuit of 208·5 miles, at an average speed of 33·9 miles an hour. The chassis, which is of the live-axle type, is peculiar for its two-cylinder horizontal engine, which has four pistons. A full description of these vehicles appears in this issue.

chamber, the lower end of the rock-levers carrying one end of the connecting-rods, and the upper end of the rock-levers being hinged up to a pair of pistons; each pair of pistons that travels outwardly in the same direction, in the two cylinders, are thus yoked up together.

The bore of the cylinders is $4\frac{1}{4}$ ins., and the engine, which runs at speeds of 200 to 1,100 revs. per min., develops 18-h.p. at 800 r.p.m. It has atmospheric inlet-valves, low-tension igniters that are operated from the same cams as the exhaust-valves, and an ingenious inertia governor forms a part of the actuating mechanism. The current is supplied by a magneto. The governor regulates the power of the engine at any desired speed by allowing one or both exhaust-valves to remain closed for a time; it, in turn, is controlled by a small wheel and feed-screw on the steering-pillar.

Other interesting features of the engine are that the united throw of the crank-pins is less than the combined stroke of the pistons, that no provision is made for varying the "time" of ignition, and that a force-pump continually circulates the lubricating oil through the engine when at work.

In their works at Paisley, which are admirably adapted for the manufacture of motor vehicles in large quantities, every facility has been provided for ensuring first-class workmanship, and special attention has been paid to the all-important question of suitable materials for each and every part of a modern touring car.

The Tourist Trophy Rolls-Royce Cars.

The car which succeeded in securing second place in the race, under the skilful guidance of Mr. Northey, is of the Rolls-Royce standard 20-h.p. type, and only differed from the sister vehicle in having slightly smaller cylinders. The bore is 95 mm. as against 100 mm., but the stroke is 127 mm. in both cases. As already announced, the special feature of the transmission mechanism is that the "direct-through-drive" is arranged for the third speed instead of the fourth speed.

The many other special features of this well-designed and extremely satisfactory make of vehicle have already received full treatment in our columns, so that it is unnecessary for us to give any full description here. When first the Rolls-Royce cars were placed on the market—



Assisting the Police, *alias* "Magistrates' Highwaymen" (Coleridge).—We referred last week to the praiseworthy efforts of the Automobile Association towards preventing unintentional breaches of the law by automobilists on the Portsmouth Road. Everyone knows how difficult it is to make quite certain on a nice open stretch of country road, slightly on the down grade, perhaps, that one is not exceeding the 20-mile limit by a furlong or so to the hour. So every good motorist is naturally thankful to the corps of cyclists who, under the Association's orders, were on the watch on Saturday and Sunday last to warn them when it appears that such excesses were being committed. Some of the cyclists were stationed on an attractive stretch on the Fairmile on the Cobham side of Esher, and other cyclist supporters of legality ranged in the neighbourhood of Peasemars, an almost more attractive stretch of open road on the other side of Guildford, others being in evidence at the top of Payne's Hill on the Wisley side of Cobham. The cyclists' warnings were attended to by the automobilists instantaneously, and an admirable object-lesson was

just prior to the last Paris Salon—we gave a very fully illustrated article dealing with their construction and design, this appearing in our issues of December 3rd, 10th, and 31st last. That article, taken in conjunction with the photographs of the T. T. cars reproduced on page 1114 two weeks ago, and with our special table in the same number of THE AUTOMOTOR JOURNAL, will be found to furnish all particulars that may be required. The competing cars on this occasion were geared up to 15, $24\frac{1}{2}$, 37, and $45\frac{1}{2}$ miles per hour at normal engine speed (1,000 revs. per min.).

The Tourist Trophy Vinot Car.

Except in respect of "gearing," this vehicle may be said to be an absolutely standard touring vehicle, without the slightest trace of "freakishness." It was geared high, no doubt, for at the normal engine speed of 900 revs. per min. it could travel at speeds of 13, $25\frac{1}{4}$, and $42\frac{1}{2}$ miles per hour, but, on the other hand, it is worthy of special notice that only three forward speeds were available. Of the chain-driven type (with two side chains), with a 14-h.p. vertical engine having four cylinders, and provided with an ordinary cone clutch, the vehicle is in its general design of quite an orthodox pattern. It is, however, one of the 1905 models which attracted our special attention at the last Paris Salon, for it, like the other cars made by the same firm, and exhibited on their stall, has many excellent features and is particularly well finished. One striking characteristic, which we mentioned at the time, is the ingenious manner in which the "Mercedes" type of change-speed-gear is operated.

The actual car, which did so well in the race, and came in third, was fitted with only one ignition system, and that a comparatively unknown system. It had low-tension "make-and-break" igniters of the "Caron" type, which might easily be mistaken for high-tension spark-plugs, since they are but little larger. Each igniter, however, contains the necessary magnetic device for operating the moving member automatically, and is merely connected up with the magneto through a "timeable" commutator. The bore and stroke of the cylinders are 90 and 130 mm. respectively, as stated in the comprehensive table which we published on page 1,110 in our issue of September 9th last.



accordingly provided of how anxious the majority of drivers are to avoid exceeding the speed limit, and how such excesses are almost always unconscious. The cyclist supporters of legality on the Fairmile stretch were successful in reducing the speed of upwards of 20 motor cars from, perhaps, slightly over 20 miles per hour to considerably less, while quite a number at Payne's Hill, and as many as 200 on the Peasemars stretch were similarly successfully admonished. By a curious coincidence, the police had thought fit to arrange "traps," or "measured furlongs," as we believe they prefer to call them, on each of these three stretches of road, and we are pained to find that the demoralisation resulting from a long period of "trap tactics" has reached such a point that the police positively remonstrated with the cyclists. The Surrey Joint Committee, which controls the County Constabulary, ought certainly, we think, to have its attention drawn to this attitude of the police. It really amounts to a scandal that harmless citizens engaged in doing their utmost to prevent breaches of the law, should instead of being supported and welcomed by the police be remonstrated with by them.

REPAIRING A PUNCTURE—A MODERN METHOD.

EVERY motorist knows, or thinks he knows, how to put a patch on an inner tube, but at the same time he will agree that it is seldom an ideal method of making a repair. Until recently there has been no other

That neither of these views are justifiable at the present day, we have, so far as has been possible in a comparatively short time, convinced ourselves, and, for the benefit of our readers, we now give a number of photographs illustrating in detail the process of effecting a vulcanised repair to an inner tube.

For convenience, instead of using a complete tyre, only a short length was employed, but the process—which was carried out with the materials supplied with the Harvey Frost "Car" Vulcaniser—was, of course, per-

Fig. 1.—The Harvey Frost "Car" Vulcaniser.—View showing the apparatus ready for use.

alternative to patching a tyre except sending it to the manufacturers for proper repair, and even now that the difficulties of vulcanisation have been, to all intents and purposes, eliminated by the introduction of an apparatus demanding only a conformance to stereotyped and very

Fig. 2.—The Harvey Frost "Car" Vulcaniser.—View of the case into which all the parts can be packed. This case measures only 10 in. × 6 in. × 6 in., and the whole "plant" weighs only about 20 lbs.

simple instructions, many motorists are shy at making such a radical change in their methods, either through a sense of mystery in the process or a feeling of insecurity in the result.

Fig. 3.—The Harvey Frost "Car" Vulcaniser.—View showing the component parts separately.

formed in the same manner as it would be when actually making a repair to a complete inner tube. Before passing on to the actual details of operation, however, it will be as well to give a brief description of the apparatus by which this type of repair is rendered possible, and to point out, for the benefit of those who have not hitherto interested themselves very much in matters relating to tyre manufacture, in what particulars this class of repair differs from that ordinarily made in the form of a patch.

Vulcanisation.

Rubber in its crude state bears no resemblance to the strong but elastic material which is familiar to everyone

in the form of inner tubes. In fact, in order to give the inner tubes of tyres their elasticity and tensile strength, it is necessary to impregnate the raw rubber with drugs, the principal ingredient of which is usually sulphur or antimony. These drugs are most carefully mixed into the pure rubber, and the resultant compound is a plastic mass which may be moulded into any shape. To convert this plastic mixture into the impervious elastic material suitable for tyres requires but one thing—the application of heat—and this final process, which brings about the necessary chemical changes, is called vulcanisation. There is a difficulty, however, in vulcanising rubber—which will appeal more strongly perhaps to those versed in the culinary arts—the compound must be neither under nor overdone, for if the former happens it will still be semi-plastic, while if overbaked the final product will be brittle. What happens during the vulcanisation process it is immaterial for the present purpose to enquire into, but that some chemical combination takes place—similar in a way to the combination of carbon and iron in steel manufacture—which alters the whole nature of the material, is obvious at a glance.

The principle of making a vulcanised repair will now be obvious. It is the rebuilding up of the damaged portion with prepared compound, *i.e.*, plastic “drugged” rubber, and the cooking or vulcanisation of the new material in place to form a homogeneous part of the whole. The actual joint between the old and the new material is ensured by the application of a compound which has been reduced to a liquid state by solution in naphtha, and, so far as can be ascertained from observation, the old and new materials do combine very perfectly at the joint.

In order to simplify the process of vulcanising such things as inner tubes, there have recently been placed on the market, by Messrs. Harvey Frost and Co., two vulcanising plants, one for the garages and the other—of which we give illustrations—for actual use on the car when touring. It may at first appear to be rather an elaborate proceeding to carry a private vulcanising plant in a touring car, but considering that the whole outfit

weighs no more than about 20 lbs. and packs into a neat case, which is only 10 ins. long, 6 ins. broad, and 6 ins. high, the suggestion is not only feasible but quite desirable, more especially as the repair can be effected in as little time as is required to properly apply a patch in the old-fashioned way.

The Vulcaniser.

The vulcaniser, Figs. 1, 2 and 3, is nothing but a small boiler, A, which is filled with water at the plug-fitting, A¹, and in the upper part, A², of which steam may be generated by the heat of a methylated spirit-burner, B. For convenience the boiler, A, is mounted on a stand, C, and for the purposes of regulating the heat the burner, B, is fitted with a sliding cover, B¹, while as an indication of the temperature the boiler has a small pressure-gauge, A³, and for safety, a relief valve, A⁴, which “blows off” at 80 lbs. per sq. in. steam pressure. When filling the boiler it is only necessary to remove the plug, A¹, and pour in water until it overflows; once filled the water may be left in for ever, although it will be advisable to occasionally remove the plug and make good any deficiency due to such escape as may have taken place through the safety-valve. It will be noticed, from our illustrations, that the boiler is cast with a central flue, A⁵, to expedite the steam raising by providing a larger heating surface. For the purpose of holding the tyre in place there is a stirrup, D, which hooks over two pins, D¹, cast in the boiler shell, a thumb-screw, D², and a plate, D³—the whole forming a kind of press whereby the object to be vulcanised may be forced down against the hot surface of the boiler.

Assuming now that the apparatus is to be brought into use, the first thing to do is to fill the burner, B, with methylated spirits, apply a light, and set in position under the boiler, where it may be left while the damaged tyre is being prepared. As it only requires about twelve minutes to raise the steam to the necessary pressure of 65 lbs. per square inch, it will be seen that the vulcaniser will in all probability be ready before the damaged tyre is properly prepared.

(To be continued.)



More “Ticketing.”—A case recently came before Mr. Plowden at the West London Police Court, in which the owner of an automobile was summoned for “driving an unregistered motor car,” the circumstances being that, ignorant of the law, he had omitted to have the registration of the vehicle transferred to him. Apropos of this, Mr. Plowden remarked “how much simpler it would be if the name and address of the owner were on every car,” a proposal which Mr. Muskett, who prosecuted, hailed with delight, and suggested should be put before the Motor Car Commission. Magistrates, like other people, are not above speaking first and thinking afterwards, and in the name of automobilists we must venture to record a most emphatic prayer that the Motor Car Commission will reject any such suggestion. The reason why the register of motor cars is not open to the public is for fear of the blackmailing to which owners would otherwise be subjected. To compel them to put their names and addresses legibly on the cars they own and drive, would simply be to render the path of the unscrupulous blackmailer easier. Their troubles are sufficiently numerous as it is, without others of such a terrifying kind as this being added.

An Eton Problem.—It seems that the motor car is providing a problem for the authorities at Eton. Once upon a time the more elaborate Etonians used occasionally to slip off on half-holidays and come up to London to amuse themselves. This state of affairs continued, and was, perhaps, more or less winked at, till a Cabinet Minister once complained to a headmaster that he met his son one Saturday afternoon coming out of a popular London theatre, when he had supposed him to be playing cricket or acting as a “wet Bob” at Eton. After that the porters were instructed to watch the outgoing trains, and it became almost as difficult for the Etonians to go *incognito* to London as for a political exile to return to St. Petersburg from the Siberian provinces of happy Russia. Now, however, the automobile has come to the rescue of the Eton youths, and the perplexity of the masters, for those who can commandeer, borrow, or own cars, mask and goggle themselves in such a way that even an Eton porter cannot be certain of their identity, and they get up to the Gaiety and other places in not much more than an hour. Eton is waiting with interest to see how Dr. Lytleton will deal with the situation.

THE MANOGRAPH—ITS UTILITY AND CONSTRUCTION.—PART II.

The Construction of the Manograph.

THE complete instrument, mounted on its tripod stand, is shown in Fig. 1, where it will be noticed that it somewhat resembles a photographic camera in

movements of the same mirror, but has the effect of tipping it sideways instead of up and down. The two mechanisms are quite distinct from one another, although both are contained inside the comparatively small casting, A¹, and, therefore, it is this portion of the apparatus to which our illustrations chiefly refer. It is shown from several different points of view, both complete and in parts, in Figs. 2 and 3, but, before describing these mechanisms, it would be as well—with the assistance of Fig. 4—to explain the general arrangement of the apparatus as a whole.

The flame of the acetylene lamp, inside the chimney, E¹, comes immediately opposite an extremely minute hole that is drilled in the centre of a disc which otherwise completely closes the telescopic tube, A². Only a very small beam of light is, therefore, thrown into the instrument, and this is directed upon a prism, E², which occupies the position indicated in Fig. 4. This prism, which is shown separately at the bottom of Fig. 2, is mounted so that it can be adjusted, and it has the effect of throwing the diverging beam of light on to the mirror, D. The light is then reflected on to the screen, A³, the convex surface of the mirror causing the rays to converge and meet in a point. Normally the position of the mirror is such that the beam of light is thrown on the screen about three-quarters of an inch above its lower edge, but the two movements to which the mirror is subjected cause the beam to travel backwards and

Fig. 3.—The Manograph. Two views showing the arrangement of the mirror (D), and two corresponding views in which the mirror has been removed; in the right-hand lower corner the mirror itself is shown separately from the front and from the back, respectively.

appearance, for the body consists of a rectangular wooden box, A, into which no external light can find its way. Fixed in front—in much the same position as a lens—is the fitting, A¹, and it is this fitting that contains the only moving mechanisms. The projecting tube, A², which passes through the side of the box, A, forms a telescopic part of the lamp fitting, and the back of the box, A, can either receive the ground-glass screen, A³—which in Fig. 1 has been slid partly out to render it visible—or a plate-carrier for a photographic negative. The apparatus is complete in itself, and is adapted to be placed on the floor in any convenient position near the engine, but it will be noticed that there are three connections that then have to be made to it. The small pipe, B, terminates in a three-way cock that has to be fixed into the wall of the combustion-chamber, the flexible shaft, C, carries a taper plug, C¹, at its extreme end, to enable it to be coupled up to the crank-shaft, and the rubber tube, E, which feeds the burner inside the lamp chimney, E¹, has to be fitted to an acetylene gas generator. The copper pipe, B, and the flexible shaft, C, can easily be detached at either or both ends, and the latter has the usual stationary external casing, as well as a freely mounted sleeve—between the plug, C¹, and its universal joint—to enable the flexible shaft to be secured in place, even when the engine is running.

The copper pipe, B, enables the pressure inside the working cylinder to act upon the small mirror in the instrument, and the flexible shaft, C, also controls the

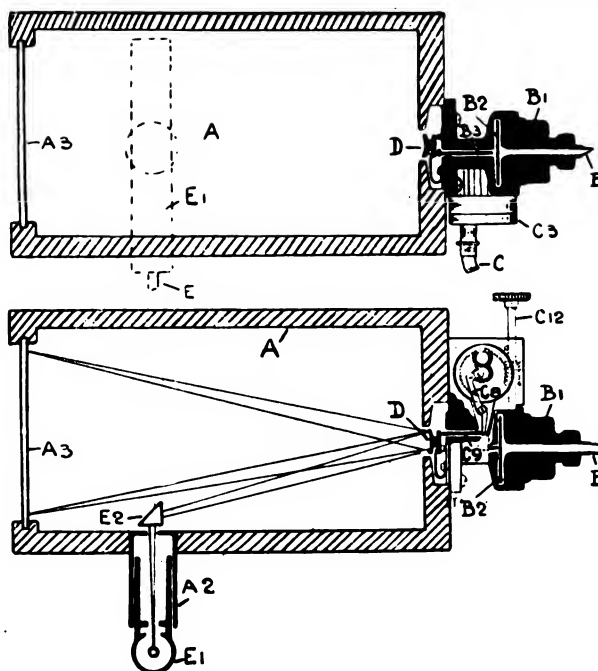


Fig. 4.—Diagrammatic sectional drawings showing the construction of the Manograph. The upper drawing is a vertical longitudinal section, and the lower is a corresponding horizontal section.

forwards, on the one hand, and upwards and downwards on the other hand, so that the beam can be projected upon almost any portion of the screen; the dotted lines in Fig. 4 indicate the normal positions of the beam of light.

Referring now to Figs. 2 and 3, the reference letters on which correspond with those in Figs. 1 and 4, the fitting, A¹, is first shown from the front, with the plug, B¹, the adjustment screw, C¹³, and the diaphragm, B², removed and placed alongside. To the right, it is shown from the back, with the plug, B¹, lying beneath it, and, in the lower portion of the same illustration, the fitting, A¹, is seen from above and from beneath respectively. All cover plates have been removed in these illustrations to enable the interior parts to be seen. In Fig. 3 a portion only of the casting, A¹, is shown from two different points of view, both with the mirror, D, in place, and also with the mirror removed, while, in the lower right-hand corner, separate views are given of the front and back of the mirror alone. The portion reproduced in Fig. 3 is that which projects through the main casing, A, into the interior of the apparatus, and will readily be recognised by comparing Figs. 2 and 3 together.

Since the mirror, D, is undoubtedly the most important part of the manograph, it is, perhaps, only natural to commence with it in this description. It is, it will be seen, balanced to the stationary pin, D², which has a tapering point that fits into the hole, D¹. The bracket in which the hole, D¹, is formed is of triangular shape, and is rigid with the mirror. The projecting arms, B⁵ and C¹, of this bracket rest, respectively, on movable pins, B³ and C², but these pins are normally prevented from tipping the mirror about its fixed fulcrum by the springs, B⁴ and C¹⁰, which press down upon those arms. The pins, B³ and C², are both capable of sliding

longitudinally in the holes through which they pass in the casting, A¹, and they are specially shaped and carefully placed, in relationship to the shapes and positions of the arms, B⁵ and C¹, so that the movements of the mirror, D, shall correspond in the desired manner with their own backward and forward travel. The pin, B³, can tip the mirror in such a direction that the beam of light reflected by it will be moved upwards upon the screen, and the other pin, C², can only tip it so that the beam of light is made to travel horizontally across the screen. The former pin is, as we shall now proceed to show, controlled by the pressure in the combustion-chamber, and the pin, C², is caused to move backwards and forwards in such a way that it keeps time with the piston in the engine cylinder.

The pin, B³, lies central with the plug, B¹, to which the copper pipe, B, is connected, and a chamber is formed in the casting, A¹, so that the plug, B¹, can hold a metal diaphragm, B², in place inside it. The diaphragm is firmly secured around its edge between the plug, B¹, and the main casting, and the centre of the diaphragm is then pressed up against the end of the pin, B³, causing it to slightly deflect the mirror against the action of the spring, B⁴. The outer face of the diaphragm is in direct communication with the combustion-chamber of the engine, and a gas-tight joint is insured. The diaphragm itself is therefore subject to movement backwards and forwards in accordance with variations of pressure in the engine-cylinder and its movements are transmitted to the mirror by the pin, B³. The movements of the diaphragm itself are naturally not proportional to the pressure, but the pin, B³, is so shaped at its inner end that a correction is made for this by varying the effective length of the lever-arm, B³.

(To be concluded.)



(H)andover Justice (?) Week by Week—As administered by Colonel Harmar, H. Nicoll, F. R. H. Sutton, C. F. Randolph, W. Cory, &c.—The Andover magistrates have adopted a variation in tactics. Not that they can claim originality in the departure, for other police courts have played the same game. It is a refined (?) method of applying torture to the victims to induce them to confess their guilt and be fined quickly. At the commencement of the proceedings the magistrates give notice that defended motor car cases will not be taken till the rest of the business of the court is disposed of, but that those who plead guilty can be fined and go at once. This means, of course, that the unfortunate automobilists who are gifted with a certain amount of obstinacy are kept hanging about the whole of the day, in order to obtain what remnants of justice may still flicker about Andover. In the good old days of the thumbscrew and the rack, if you made over all your property to Holy Church when first brought into the torture chamber, you were usually let off with at most a few digs of the red-hot pincers. If you maintained your innocence, well, in the end you had to "hand over" all the same. That the sole object of this precious Bench is Money! Money!—the alleged danger to the public being a mere pretence—is quite evident from the admission in one case which Police Superintendent Bowles had to make, that although representations had been made to the authorities as to the advisability of placing danger-posts at the particular "bagging" point, *nothing had been done*. Of course not! That would not suit the book of the great "(H)andover" unpaids.

THE inventiveness of some of our local authorities is quite entertaining. There are few things which they have not proposed in the hope of annoying motorists and hampering the development of the industry, but at present the Saffron Walden Rural District Council holds the field with a proposal that we should revert to turn-pikes so as to be able to exact sufficient money from motorists to relieve the local authorities who have to keep the roads in repair, and also to check "furious motoring." The Saffron Waldenites evidently remember that it was the excessive tolls that killed the old steam car industry. There is a quaint old medieval proverb, "You come from Saffron Walden: God help you!"—which we have never before quite understood, but now light is dawning.

PART of the campaign of the Motor Car Commission has been commenced by the Commissioner of Police, who is one of the members, and who appears to have decided to send round a representative to ask the magistrates of the Metropolis what their opinions on the motor car question are. Mr. Muskett, representing the Commissioner, appeared recently before Mr. Lane, K.C., and propounded the conundrum as to whether "in the magistrate's opinion a speed of over twenty miles an hour on a main road, like the Kensington Road, was not dangerous?" Mr. Lane returned what may be called a very significant non-committal reply. He said: "My opinion is that a proposition put on that basis is an impossible one, because it all depends on the driver, and the driver is so important an element that to assume the *pace of itself is dangerous to the public is idle*."

RACES, RECORDS, AND TRIALS.

occupants of the other car, the Peugeot was quickly pulled back on to the course, none the worse for its contact with the fence, and the driver—without having left his seat—after merely remarking that he “was taking a message to Ramsey,” drove off without another word, as if there was nothing unusual about the occurrence.

SUBJECT to the weather being favourable, further dust trials are fixed by the Automobile Club to take place near Reading to-day (Saturday).

Scottish Hill-Climb.—At Kirkfield Hill, near Lanark, on Saturday last the Western Section of the Scottish A.C. held a hill-climbing competition confined entirely to members of the Club. The event was purely a sporting one, and no entry fee was charged. The distance over which the cars were timed on the hill was 821 $\frac{3}{4}$ yards with an average gradient of about 1 in 9, there being no sharp turns from start to finish. The event was only open to touring cars, twenty of which competed, and all successfully succeeded in getting to the top of the hill. The chief results were as follows:—

				Time.		m.p.h.
				m. s.		
Wm. Weir, 15-h.p. Darracq (Mr. Kennedy's)	H.	1	40 $\frac{1}{2}$	...	...	16.7
O. R. Williams, 15-h.p. Darracq	...	...	2	7	...	13.2
S. M'Hutchon, 18-h.p. Peugeot	...	...	2	12 $\frac{1}{2}$	...	12.6
P. P. Ness, 18-h.p. Mercedes	...	...	2	17	...	12.3
St. J. A. M'Onie, 15-h.p. Panhard	...	...	2	21 $\frac{1}{2}$	...	11.8
D. T. Kirkpatrick, 16-20-h.p. Argyll	...	...	2	23 $\frac{1}{2}$	...	11.7
J. G. Raphael, 15-h.p. Chenard-Walcker	...	...	2	25 $\frac{1}{2}$	...	11.5
A. J. Fergusson, 16-20-h.p. Argyll	...	...	2	33 $\frac{1}{2}$	...	10.9

Lord Raglan, the Governor of the Isle of Man, waiting in the rain on Snaefell to witness the race for the “Graphic” Cup on Friday, when, owing to the state of the elements, it was found impossible to run this event.

The Graphic Challenge Trophy.—On the day following the Tourist Trophy Race, it was arranged to hold a five-mile speed contest for the Graphic Challenge Trophy. This, the second race for the trophy, was doomed not to take place on that day however, for an impenetrable mist settled on the mountain, up which the course was laid, between Ramsey to the Bungalow, and it was impossible to allow the cars to start. The event was postponed indefinitely, although we understand that an attempt will be made to overcome the difficulties of holding the event in England.

This same mist was the occasion of a somewhat amusing incident. One of the Peugeot cars was despatched to Ramsey with an official message, and suddenly came upon a “thickly-populated” Humber car going in the opposite direction, at one of the numerous corners. The situation was a little cramped, but the driver of the Peugeot steered a course of his own choosing, and making straight for some iron railings, knocked them down and deliberately ran down a bank into a field. With the assistance of the

Southern Motor Club Hill-Climb.—The above Club held their hill-climbing contests for cars, tricar, and motor cycles at Tilburston Hill, Godstone, on Saturday last. Gold medallions will be presented to the winners of each class, Mr. F. C. Pattison (9-11-h.p. Clément) made fastest time up the hill, and also proved the winner on the handicap in the Car Class, his time being 2m. 41 $\frac{1}{2}$ s. Mr. F. Catling (8-10-h.p. Humber) was placed second, and Mr. W. Acton (15-h.p. White

TOURIST TROPHY RACE.—General view of the garage tent and enclosure where the cars were placed under official supervision before and subsequent to the Race.

and Poppe) third. The following was the handicap formula used:— Time in sec. \times H.P. In the Tricar Class Mr. C. H. Pugh ($3\frac{1}{2}$ -h.p. Minerva) climbed the hill in 2m. $3\frac{1}{2}$ s., while Mr. T. H. Tessier (4-h.p. Bat) in the Motor Cycle Class was timed for 1m. $5\frac{1}{2}$ s. The last two classes were run under a sealed handicap, arranged by Mr. F. Straight, of the A.C.C., and will be opened on Thursday at headquarters. The timekeeper at the top of the hill was Mr. A. Vickers, N.C.U., and at the bottom Mr. W. Pratt, Mr. Bygrave acting as starter. Between thirty and forty members and friends afterwards sat down to tea at the Clayton Arms Hotel, Godstone.

A MOTOR Gymkhana, with several novel features, took place at Portsmouth on Saturday last on the Officers' Grounds in delightfully fine weather. The winners in each event were:—

Ribbon Race for Cars.—The competitors in pairs were joined by a ribbon and had to follow a leader round a bending course. As each pair broke its ribbon it left the course. Ten pairs started. (1) Mr. T. Winans and Capt. G. R. Normand, R.G.A.; (2) Miss J. Larkins and Commander L. Mitchell, R.N.

Egg and Spoon Race (Motor Bicycles).—Seven starters. The competitors had to start dismounted, with the engine stopped, and had to cross a line 50 yards from start with engine going, spoon in mouth and egg in spoon, (1) Lieut. N. E. Nasmith; (2) Lieut. E. Douglas Jones, R.G.A.

Towing Race.—The cars were drawn up in two lines, 30 yards apart, and on a signal the rear line drove up, and took those in front in tow. Once round. Full complement of passengers were carried by each car, (1) Lieut. C. Good, R.N., and Miss J. Larkins; (2) Capt. G. R. Norman, R.G.A., and Com. L. Mitchell, R.N.

Race for Motor Bicycles (not exceeding 4-h.p.).—Riders had to start dismounted. Ten times round the course. Eleven starters, (1) Lieut. St. John, R.N.; (2) Sub-Lieut. G. Hebert, R.N. Won by 200 yards.

One Hundred Yards' Speed Race.—Course straight, standing start, engine running, gear neutral; (1) Mr. M. Grahame White, (2) Mr. T. Winans.

High Gear Crawl.—100 yards straight. Start twenty yards behind a line, high gear on when front wheels cross the line, after which breaks or clutch are not touched; (1) Lieut. R. M. Burmester, R.N., (2) Lieut. H. G. Vereker, R.N.

V.C. Race, Cars.—The start was from a line, the cars having to run backwards 100 yards, pick up a passenger (seated on a chair) on a line five yards off, who was carried to the car, and the cars then drove forward fifty yards to the finishing line; (1) Mr. T. Winans, (2) Mr. T. Jane.

V.C. Race, Tri-Cars.—(1) Sub-Lieut. St. John.

V.C. Motor Bicycle Race.—Both passenger and driver had to be mounted on the bicycle during the return journey. (1) Sub-Lieut. G. Hebert, R.N.; (2) Sub-Lieut. St. John, R.N.

Musical Cars.—The competitors, with passengers, had to drive round a circle, and when the music stopped the cars did so, when the passengers had to run to the central flag, the last arrival being "out" each time. Gentlemen as passengers, (1) Professor J. Dykes; (2) Captain H. A. Ramsay, R.A. Ladies as passengers, (1) Miss J. Larkins; (2) Lieut. H. M. Burmester, R.N. Two gentlemen and one lady as passenger, (1) Captain G. R. Normand, R.G.A.; (2) Mr. T. Jane.

Florio Cup.—For 1906 the prize money is to be very largely increased in connection with the Florio Cup recently run on the Brescia Circuit in Italy. Signor Figari, a rich Italian, has promised 100,000 lire in addition to the 50,000 lire given by Mons. Florio.

In regard to this race, M. Georges Prade, of *Les Sports*, has "re-constituted" the times of the race for each circuit by calculating the net time on each round of each car, allowing for the times occupied under the "re-spacing" arrangements at the three "time" controls. The figures are interesting, as showing the relative positions of the various competitors under these conditions in regard to actual speed for each circuit, and we, there-

fore, reproduce these below, the times being respectively for the first circuit, two circuits, and the three circuits, which constituted the full race:—

Circuits and Places.

	Place.	1st, 168 kil.	Place.	1st and 2nd, 336 kil.	Place.	1st, 2nd, and 3rd, 504 kil.
		h. m. s.		h. m. s.		h. m. s.
Raggio (Italia) ...	4	1 30 53	2	3 12 10	1	4 46 47
Duray (De Dietrich) ...	5	1 31 40	6	3 24 8	2	4 56 20
Lancia (Fiat) ...	11	1 43 1	7	3 25 44	3	4 57 54
Hemery (Darracq) ...	3	1 29 54	4	3 21 17	4	4 58 12
Rougier (De Dietrich) ...	6	1 32 12	1	3 5 3	5	5 12 50
Nazzaro (Fiat) ...	10	1 39 27	8	3 35 26	6	5 12 52
Fabry (Italia) ...	1	1 28 39	9	3 37 2	7	5 18 10
Wagner (Darracq) ...	8	1 35 49	10	3 41 4	8	5 19 4
Florio (Mercedes) ...	9	1 37 45	11	3 46 20	9	5 29 11
Gabriel (De Dietrich) ...	7	1 35 46	3	3 13 56	10	5 33 44
Terry (Mercedes) ...	12	2 32 30	12	4 27 4	11	6 21 25
Ceirano (Italia) ...	2	1 29 33	5	3 21 38	12	—

Semmering Hill-Climb.—On Sunday last, under the auspices of the Austrian A.C., for the seventh year in succession, the annual race up the Semmering Hill was successfully carried through. The best time was made by Braun, on a 100-h.p. Mercedes. He covered the 10 kiloms. (with a total rise of 400 metres) in 7m. $50\frac{1}{2}$ s., thus beating his own previous record of 8m. $11\frac{1}{2}$ s., and coming out with the best time for the third year in succession. The chief times in the other classes were:—

Motor Bicycles, under 50 kilogs.—Wondrick (5-h.p. Laurin-Klement), 9m. $15\frac{1}{2}$ s. Previous record, Nicodem (Puch), 10m. $21\frac{1}{2}$ s.

Motor Bicycles, under 65 kilogs.—(1) Weska (Puch) 9m. 4s. Old record, Bittner (Woricum), 9m. $45\frac{1}{2}$ s.

TOURIST CARS.

Cat. 1, under $2\frac{1}{2}$ litres cylinder capacity.—(1) Zeitlings (Peugeot) 20m. 40s.

Cat. 2, under $3\frac{1}{2}$ litres.—(1) Spitz (Mercedes), 14m. $17\frac{1}{2}$ s.

Cat. 3, under 6 litres.—(1) Hieronymus (24-h.p. Spitz), 13m. $23\frac{1}{2}$ s.

Cat. 4, under $8\frac{1}{2}$ litres.—(1) Mueller (Mercedes), 13m. 33s.

Cat. 5, above $8\frac{1}{2}$ litres.—(1) Braun (Mercedes), 11m. 45s.

The best times accomplished in the former years were:—

1899. A. Spitz (De Dion motor bicycle), 22m.

1900. J. Dietrich (De Dion motor bicycle), 14m. $38\frac{1}{2}$ s.

1901. Dr. Stern (35-h.p. Mercedes), 12m. $30\frac{1}{2}$ s.

1902. Werner (40-h.p. Mercedes), 10m. $37\frac{1}{2}$ s.

1903. Braun (60-h.p. Mercedes), 8m. $47\frac{1}{2}$ s.

1904. Braun (80-h.p. Mercedes), 8m. $11\frac{1}{2}$ s.

Gordon-Bennett Cup, 1906.—Mr. Gordon-Bennett, it is reported from Milan, proposes that in view of the abstention of the French and British clubs from next year's Gordon-Bennett Race that the Trophy should become the first prize in a big touring car event instead of for racing cars, and with this object the representatives of the various clubs are to be approached in order to arrive, if possible, at an understanding agreeable to all concerned.

Provence and Mont Ventoux Meeting.—The Mont Ventoux Hill-climb this year again formed part of the meeting arranged by the Salon A.C. The meeting opened on the 14th instant with speed tests on the Salon-Arles Road over 1 kilom. and 5 kiloms. (both flying start), the main interest in the latter being the securing of the Rothschild Cup for the best time. Collomb, on a Mors racer, proved the victor over the 5 kiloms., and

MONT VENTOUX HILL-CLIMB.—One of the stiff gradients up Mont Ventoux. The car is M. Giry's Svelte, which was the winner in the Tourist Car Class for 9,000 to 14,000 francs, with the time of 59 mins. 6½ secs.

tying with Stead's Mercedes over the 1 kilom. The chief results for the day were as follows:—

RACERS.—Heavy Cars.

Collomb (Mors) ...	5 kiloms.	2m. 0½s.	1 kilom.	26½s.
Stead (Mercedes) ...	"	2m. 6½s.	"	26½s.

MOTOR BICYCLES.

Demester (Griffon) ...	"	2m. 54s.	"	34½s.
Robert (Buchet) ...	"	2m. 59½s.	"	38s.
Lamberjack (Griffon)	"	3m. 4½s.	"	36½s.

TOURIST CARS.—Costing under 5,000 francs.

Riviere (Cottureau)...	"	5m. 10½s.	"	1m. 3½s.
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Under 20,000 francs.

Mottard (La Buire)...	"	2m. 40½s.	"	35½s.
Fabre (Berliet) ...	"	3m. 29½s.	"	43½s.
Mouren (Bayard-Clement) ...	"	3m. 34s.	"	44½s.

Over 20,000 francs.

(1) Bablot (Berliet)...	"	2m. 50½s.	"	35½s.
(2) Batigne (Tourand)	"	3m. 15s.	"	50½s.

On the 16th the climb up Mont Ventoux commenced, the day being allotted to the tourist vehicles. The mountain road, the scene of the climb, is 21.6 kiloms. long, with a total rise of 1,895 kiloms., the gradient being 9 per cent. for a considerable portion of the way, with a final 100 metres of 13 per cent. at the top. The chief results were:—

Motor Bicycles.—1. Ruamps (Griffon), 27m. 9½s., previous record 51m. 17½s.; 2. Lamberjack (Griffon), 28m. 11½s.; 3. Demester (Griffon), 29m. 55½s.

Cars under 9,000 Francs.—1. Riviere (Cottureau), 56m. 16s., previous record, 1h. 15m. 44s.; 2. Aubert (Cottureau), 1h. 0m. 48½s.; 3. Vimont (Aries), 1h. 11m. 2s.

9,000 to 14,000 Francs.—1. Giry (Svelt), 59m. 6½s., Darracq record of 50m. 15½s. not beaten; 2. Marze (Cottureau), 1h. 2m. 39s.; 3. Champeyrache (Champeyrache), 1h. 5m. 40s.

14,000 to 20,000 Francs.—1. Didier (La Buire), 32m. 29½s., new category; 2. Fabre (Berliet), 33m. 21½s.; 3. Murreau (Bayard-Clement), 38m. 14s.

Over 20,000 Francs.—1. Mottard (La Buire), 24m. 19s., old record 33m. 50s.; 2. Bablot (Berliet), 28m. 56½s.

On the next day the racers showed their paces, and in this class Cagno, on one of the famous Fiat vehicles, proved to be the winner, he covering the 21.6 kiloms. in the marvellous time of 19½ mins., beating previous records by 2 mins. all but ⅓ secs. Rougier on his De

Dietrich, who last year was the winner, came within 15 secs. of Cagno. The results were:—

Heavy Cars.—1. Cagno (Fiat), 19m. 30s.; 2. Rougier (De Dietrich), 19m. 45s.; 3. Vitali (Rochet-Schneider), 22m. 27½s. 4. Collomb (Mors), 22m. 59½s.; previous record, Rougier, 21m. 12½s.

Voiturettes.—1. De la Touloubre (Darracq), 25m. 39½s.; previous record, Albert, 29m. 59s.

Motor Bicycles.—1. Lamberjack (Griffon), 25m. 48½s.; 2. Demester (Griffon), 28m. 35½s.; 3. Pons (Magali), 37m. 53s.; previous record, Ingilbert, 32m. 20s.

A bad accident occurred subsequently, during the descent, to Collomb's Mors car, which resulted in the death of M. Rol, a much respected member of the staff of our contemporary *Les Sports*. The Hunziker prize for regularity offered for the best combined performances at the Provence and Ventoux Meetings, was secured by Collomb with his Mors, he gaining 343 points. In the tourist cars Riviere with his Cottureau was first in the 9,000 francs category with 138 points, Mottard and his La Buire with 266 points was top in Cat. 3 (over 20,000 francs), and in motor bicycles (Griffon) was best with 253 points.

These points were arrived at by the addition of the average speed attained over the 1 kilom., the 5 kiloms., and up Mont Ventoux.

1906 promises to be a year of big touring events. Already the French Club are contemplating a lengthy course, and now the German and Austrian Clubs are proposing a similar project. It is suggested that the tourist run should be between Stuttgart, Vienna, Berlin, and Hamburg. The date would be arranged so that at Vienna the Semmering Hill Climb could be included, and speed tests over the kilometre and mile run on the Prater. During the tour, a speed contest is to be arranged on the Taunus circuit, under the immediate auspices of the German Club (with the moral support of the German Emperor), and if possible the run is to be so timed as to take part in the competition for the Herkomer Cup.

THE Duke of Abruzzi, it is hoped, will be the new President of the Italian Automobile Club in the place of the late Marquis Ginori.

MOTOR BOATING.

British Motor Boat Club.—The three days' race meeting, which this club is organising at Burnham-on-Crouch on 28th, 29th, and 30th, is receiving good support, and gives promise of some fine racing. We learn that there will be about five-and-twenty boats racing each day, amongst them being:—Brooke I., Napier, Napier II., Mercedes IV., Quicksilver, Pallas, St. Helena, Fiat, Javelin, Baby I., Baby II., Scout I., Takumono, Iris, Hummono, Omega, Z, Stirling I., Elgiva, and Viatic.

Menier Prize.—Continuing the Arcachon Motor Boat Meeting since our last week's issue, on the Wednesday the Menier prize was disputed, with the following results:—

Racers (30 miles).—(1) Napier II., 1h. 27m. 6s. (2) Napier, 1h. 29m. 56s. (3) Asmodee (24-h.p. Panhard motor), 2h. 23m. 26s.
Cruisers (15 miles), *boats under 6½ metres*.—(1) Mourguin (4-h.p. Couach motor), 2h. 32m. 30s.
6½ to 8 metre boats.—(1) Herald (24-h.p. Herald), 1h. 20m. 40s.
8 to 12 metre boats.—(1) Fefe (50-h.p. Filtz), 1h. 16m. 46s.
12 to 18 metre boats.—(1) Cazamoto (60-h.p. heavy oil motor), 1h. 38m. 52s.

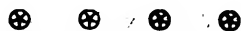
SOME interesting motor boat races, which were held on the Hudson River, are reported from New York. The results were, over a distance of 30 miles:—

40 foot Boats.—(1), X P D N C (75-h.p. Mercedes motor), 1h. 36m. 2s.; (2), Veritas (200-h.p. Craig), 1h. 43m. 24s.
8-metre Boats.—(1), Dixie (150-h.p. Smith-Mabley motor), 1h. 32m. 49s.; (2), Shooting Star (50 h.p. Lozier), 1h. 38m. 28s.

On the 16th instant, off Long Island, a match between W. K. Vanderbilt, jun., and Howard Gould's boats, over a distance of 40 miles was run off, with the result:—

1. Tarantula (Vanderbilt), 1h. 53m. 1s.
2. Niagara (Gould), 1h. 55m. 49s.

In the run from New York to Poughkeepsie and back (175 miles), the "Proctor Smith" was winner in 7h 27h. 53s.



MOTOR CYCLING.

Auto-Cycle Club.—The penalty run of the club, taking place to-day (Saturday), will start from the Castle Hotel, Woodford, Essex, at 3 p.m., the competition being confined to members of the club and affiliated clubs. The run is a test of skill and driving reliability, a minimum time of 3½ hours and a maximum of 3h. 50m. being allowed for the distance of 68 miles. The route is on the Cambridge-Newmarket road, *via* Epping, Harlow, Sawbridgeworth, Hockerill, Ugley, Newport, Littlebury, and back, and each stop entails a fine of 6d., with a maximum of 2s. 6d. Failure to finish within maximum time entails 1s. fine; failure to finish within 5 hours, 2s. 6d. No pedalling is allowed, and in competing for the special prize, the best riding time to the minimum schedule will be counted as well as non-stop points. After the finish of the run, a concert will be held, under the auspices of the Essex Beaumont U.C., at the Castle Hotel, Woodford.

Motor Cycle Records.—Anzani, on an Alcyon motor bicycle, on the Parc des Princes track, on Sunday last, covered 93·78 kiloms. in the hour, and was timed for the 100 kiloms. in 1h. 4m. 14½s. His machine had a cylinder capacity of 90 by 90, but it was found subsequently that his machine somewhat exceeded the 50 kilog. limit and therefore the official record for the 50 kilog. machines still rests with Guipponi and his Peugeot machine, of 1h. 6m. 36½s. for 100 kiloms., and 90·36 kiloms. in the hour. Anzani can, however, claim to have accomplished the faster time on a motor bicycle on a track. Anzani's chief times were:—

Kiloms.	h. m. s.	Kiloms.	h. m. s.
10...	0 6 29½	60...	0 38 56½
20...	0 13 1½	70...	0 44 49½
30...	0 19 37½	80...	0 51 10½
40...	0 26 37½	90...	0 57 31½
50...	0 32 28½	100...	1 4 14½

CLUBS AND ASSOCIATIONS.

Inter-Club Meet at Ashby-de-la-Zouch.—The sudden change of venue from Buxton to Ashby-de-la-Zouch of the inter-club meet arranged under the auspices of the Nottinghamshire A.C., with which we dealt in our editorial columns last week, militated against a large gathering of cars at the new place of meeting. Instead of about 150 cars taking part, about thirty only mustered at Ashby, and most of these were owned by members of the Derbyshire Club. As the drastic step of changing the objective of the run at the last minute was taken by the Notts A.C., it is somewhat surprising that so small a muster from this club has to be recorded, as only the following were present to represent the club:—Messrs. Booth-Grainger (hon. sec.), 12-h.p. Gladiator; E. W. Joule, 12-h.p. Darracq; H. Belcher, 12-14-h.p. Talbot; Clifford, Jun., 10-h.p. Richard-Brasier, and Mrs. Shepherd, the very active lady member of the club. In addition to the large contingent representing the Derbyshire Club, representatives were present from the Leicestershire and Wolverhampton Clubs. The action of the Nottingham Club in transferring its favours at the last moment from Buxton to Ashby-de-la-Zouch, has been made the subject of considerable hostile criticism—on the whole, we think without adequate reason. Local opinion is bound, in the long run, to influence even benches of magistrates, and local opinion is likely to be rendered more effective in this respect by being made to see that high-handed and prejudiced action by local magistrates deflects valuable and paying visitors to other towns. When similar action was taken a few years ago in regard to Reigate, when the proceedings of that bench of magistrates were nearly as notorious as the doings of the Andover "Dogberrys" and "Snallows" are now, the townspeople made their indignation so felt that the Reigate magistrates repented and (doubtless reluctantly) mended their ways. We trust the same effect will be produced at Buxton.

The Society of Motor Manufacturers and Traders, Limited, and the Motor Car Commission.—The efforts of the Society of Motor Manufacturers and Traders to assist the Royal Commission on the Motor Car Acts by furnishing reliable statistics affecting the trade, are being seconded by the leading firms and agents all over the country, so that when the Commission meet on October 16th, Mr. T. F. Woodfine, the secretary of the Society, will be in a position to place much valuable information before them. The following firms have already sent in returns:—Armstrong, Whitworth and Co., Ltd., T. C. Aveling and Co., Ltd., Brampton Bros., Ltd., J. W. Brooke and Co., Ltd., Cannstatt-Mercedès, Ltd., Charles Jarrott and Letts, Ltd., Daimler Motor Co. (1904), Ltd., Duryea Motor Co., Ltd., S. F. Edge, Ltd., James and Browne, Ltd., Milnes-Daimler, Ltd., Panhard and Levassor, Straker Steam Vehicle Co., Ltd., Straker and Squire, Jno. I. Thornycroft and Co., Ltd., Ayr County Motor Co., James H. Scott (Melrose), John Rutherford (Jedburgh), Auto Machinery Co., Ltd., Central Motor Car Co., Coventry Chain Co., Car and General Insurance Co., Ltd., Dixon Bros. and Hutchinson, Ltd., Dennis Bros., Ltd., Engelbert and Co., Alfred Herbert, Ltd., London Motor Garage Co., Ltd., Moss, Ltd., Otto Bennett Motor and Engineering Co., Rotterdam and Sons, Royce Ltd., Rubery, Owen and Co., Ryder Motors, Ltd., Ryknield Engine Co., Ltd., S. Stevenson and Co., D. Stewart and Co. (1903), Ltd., Turner's Motor Mfg. Co., United Motor Industries, Ltd., Vulcan Motor Mfg. Co., Ltd., George Ace (Tenby), G. Cox (Southsea), Mann, Egerton and Co., Ltd., Tom Norton (Llandrinod Wells), Northern Cycle Mfg. Co. (Aberdeen), Nottingham Autocar Co., Ltd., Oxford Cycle and Motor Car Co., A. C. Perman (Dumfries), and Ross-leigh Motor Co., Ltd.

THE Motor Union has appointed the St. Ermin's Hotel, Victoria Street, Westminster, its social headquarters in London. Special terms have been arranged for its members.



Another Rural Council on the War-Path.—The Ripon Rural District Council has recently passed (of course unanimously) the following resolution:—

"That having regard to the material change in the character of the traffic upon highways, and believing that it will be necessary to effect an alteration in the method of road construction at an increased cost, the Council is of opinion that a proportion of such cost should be raised by an increased tax upon motor cars, the amount to be raised by such taxation to be divided amongst the several highway authorities in the country."

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

BRITISH INTERNATIONAL CUP.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—The ways and workings of the A.C.F. are, to say the least of it, most weird and wonderful, as the following details, *re* the Harmsworth Cup, will prove; perhaps the same may be of interest to your readers.

Being holder of the cup I offered to lend my New Trefle to Messrs. Richard Brasier to defend it, but they did not see the justice of the defending boat paying the exorbitant entrance fee of £20, so declined my offer.

I, naturally thinking there would be plenty of French boats to take up the defence, entered the New Trefle for the races in the Swiss and Italian lakes, which were held about the same time, and where she won everything in her class.

Hearing, however, just before the racing at Lake Garda that all the French boats had scratched, I instructed my representative in Paris to inform the A.C.F. that I was not only prepared to throw up the engagements at Lake Garda to defend the cup, and send the New Trefle by *grande vitesse* to Arcachon, but also if necessary to pay double entrance fees; he was informed by the secretary of the Committee du Yachting Sportive, M. Hocmelle, that it was too late and the New Trefle could not be entered under any circumstances. Now comes the farce of the thing. My cruiser Mab, fitted with sleeping accommodation, gallet, &c., which I had lent to the Claudel Carburateur Company to run for the Récopé Cup with heavy oil, was requested the day before the race to enter for the Harmsworth Cup, paying no entrance fees whatever, for the sake of making some semblance of a race. The same proposition was extended to the little 26 ft. boat, Loodit, of Bordeaux. After the treatment meted out to my offer to the A.C.F. in Paris, this came as a great surprise to me, as I knew nothing of the Mab's running until I saw the results in the papers. Comment is needless.

Yours very truly,

E. B. THURBON.

20, Rue Taitbout, Paris.
September 15th.

FOR THE CLERGY AND DOCTORS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Now that the Tourist Trophy Race, with its attendant excitements, is a thing of the past, it is possible that the manufacturers of automobiles may be induced to consider the needs of a humble but fairly numerous class. The country parson has in many cases been driven off the road by the motor, and has been compelled to sell his horses. He can no longer dare to hitch his nag to a cottage paling, and he dreads the return at night from distant occupations on account of the blindingly fiery acetylene eyes which pounce upon him from the darkness and frighten his steed to death. As with the parson so with the doctor and possibly many another dweller in the country. These unfortunates grumble, of course—all true Britons do—but they recognise the inevitable, and only ask that the tyrant spirit which has robbed them of one of their happinesses shall evolve a machine suitable to their pockets and their circumstances.

To the uninitiated the following appear to be the essentials of "The Rector's Car." 1. *Extreme simplicity*—a single cylinder if possible, and an entire freedom from intricate contrivances, however alluring; magneto ignition on account of the difficulty in charging accumulators. 2. *Reliability*—high speed is not required, but the *voyageur* must be pretty sure of "getting there," he is on business, not pleasure. 3. *Economy*—solid tyres will suit him better than pneumatics. 4. *A low price*—the car should seat four and be a good hill-climber, but it wants no plating or superficial magnificence, it is a car for a poor man, for one who buys, not because he wishes to, but because he must.

I am, Sir,

Your obedient servant,

Leeds.

PERSONA.

THE Car and General Insurance Corporation, Limited, have opened a West End office at 1, Albemarle Street (corner of Piccadilly) under Mr. H. F. Baker as Assistant Branch Manager, with two other Inspectors to assist him. It is hoped that this branch office will be of real assistance to the Company's large connections amongst those interested in the motor industry, especially in the West of London.

COMMERCIAL POINTS.

J. E. WILLIS, who possesses long practical experience, has commenced business in Dunstable as a repairer.

MR. E. H. LANCASTER, who was in the Isle of Man for the Tourist Trophy Trials, afterwards left for the South of Ireland to arrange agencies for 1906 Cléments.

MR. W. M. LETTS, of the firm of Charles Jarrott and Letts, Limited, left England on the 15th inst., for his annual visit to the States, sailing on the s.s. *Celtic*. His programme is to get through his business and to stay and witness the Vanderbilt Cup Race, returning to this country at the end of October.

THE Alnwick Motor Garage and Cycle Company, Limited, have recently completed their new works and garage situated in Bondgate Street, Alnwick. They have an excellent range of machinery for repairs, &c., all of which is electrically driven, whilst in the garage every provision has been made for the convenience of motorists in regard to inspection pit, lock-up cupboards, washing accommodation, vulcanising plant, re-charging accumulators, &c. Accessories, tyres, tubes, and other requisites are regularly stocked, skilled mechanics being always ready at a moment's notice.

MESSRS. RUBERY AND CO., of Darlaston, South Staffordshire, the well-known frame makers, have added their Mr. Owen's name to the style of their firm, which is now "Rubery, Owen and Co." Mr. Owen has been well-known in the trade for a considerable time, and has been concerned in the manufacture of thousands of frames of all descriptions since 1896.

The Walker Engineering Laboratories of the University of Liverpool have recently received a welcome addition to their equipment, this being the 7-h.p. Gardner engine shown in our illustration. It is the gift of the manufacturers—Messrs. L. Gardner and Sons, of Manchester—and will undoubtedly assist the University in providing its students with an up-to-date knowledge in matters relating to high-speed oil engines. The normal speed of the engine—which uses ordinary paraffin as fuel—is 700 revs. per min., the governor acts on the inlet-valve, and the ignition is effected by a magneto. It is fitted with a "Walker" fan dynamometer, and, when fixed to its permanent foundation, will be equipped with all the necessary indicator gear and other appliances for conducting careful tests.

TOURIST TROPHY RACE.—The Ryknield Car which secured fourteenth place in the event. It is of the live-axle type, and is peculiar in having a three-cylinder engine.

Practical Effects of the Tourist Trophy.—The successful manner in which the Tourist Trophy Race, and the extent to which it has concentrated attention on tourist cars, and the advantage of these facts to manufacturers and motor car agents generally, are well illustrated by the letter which appears in our Correspondence columns this week. The communication to which we refer is a *bona fide* letter from a country clergyman, and it is only at his special desire that we refrain from giving his name. He points out—somewhat sarcastically perhaps as regards the reasons he gives—but still trenchantly, that the light, cheap, simple, and above all reliable motor car is becoming in great demand amongst country clergymen. The poorest of country clergymen in most districts have hitherto been compelled to keep at least a horse and trap. Though the initial cost may be somewhat greater, they would doubtless not repent of exchanging their hippomobile for a light motor car. Our correspondent's letter proves that the Tourist Trophy Race, to which we have so persistently drawn attention, and to which we have devoted so many special articles, is already bearing fruit for the manufacturer.

NOBODY anticipated a few years ago that there would ever be within driving distance by road but the automobile has brought this to pass. Lowestoft is one of the most attractive of our seaside resorts, it is no small service which the car thus renders to its owners. Visitors to the "Queen of East Coast watering places" will find the little guide-book, published by the Town authorities, of considerable service. It is delightfully illustrated, and is well designed to show the intending visitor how numerous are the attractions both of the sea-front of the town and its immediate neighbourhood. A special feature of the country is the well-known Broads, and exceedingly picturesque old churches at Blundeston and Corton.

SIR FRANCIS WINGATE, the Sirdar of the Egyptian army, who, as we have chroni-

cled, has for a long time been making experiments with wheels suited for motor car traction in the desert, is taking back with him a 20-h.p. car provided with specially-shaped wheels, which have been developed by experiments on the sands at Dunbar. The car is designed to haul a searchlight apparatus with a view to throwing light on the proceedings of the wily Arabs at night time in the desert. The car is also provided with a winding drum, by which, like a ploughing engine, it can pull itself out of difficulties by means of an anchor.

It appears that the recent accident to Queen Margherita's car was, as surmised at the time, an intentional effort, and the Italian police have since captured several young men who have "confessed" that they are Anarchists, and that they were aware that the Queen intended passing by the route on which they laid the boulders. A display of the same charming spirit was again given on Sunday in last week, when Queen Margherita, attended by the Marquis Guiccioli and the Countess of Villamarina, was proceeding towards Neuchâtel. Some Swiss representatives of the same attractive ideas, it is reported, threw stones at Her Majesty's car and smashed one of the windows. The object of such acts is truly incomprehensible. The state of mind which prompts cowardly assaults of this kind on one of the most kind-hearted ladies in Europe must presumably be a species of homicidal mania, though possibly the presence of the Queen on each occasion in the car was not really known, and the attempts may be perhaps merely an example of anti-motor mania of the kind with which we are also somewhat painfully familiar nearer home.

At the present time, the motor delivery van shown in our photograph can be seen daily travelling round London on behalf of Messrs. Humber, Limited, delivering cycles at their various depots, &c. This is a unique instance of a cycle house using a motor van, which they have themselves constructed throughout, purely for the purpose of delivering their own manufactured cycles. The chassis is the ordinary 8-10-h.p. Coventry Humber pattern, with the exception that the wheel base is rather longer. Six bicycles in unpacked form, or twelve machines packed ready for shipment, or a load of 12 cwts. of ordinary goods, can be carried.

It was appropriate that the British Association in South Africa should take into consideration the prospects of automobilism in the various South African colonies. A paper on this subject was read before the Association by Mr. A. T. Hennessy, the chairman of the Automobile Club of South Africa. Mr. Hennessy went over the whole ground. Considering the conditions prevailing in South Africa, he dismissed the electric car with a wave of the hand. He devoted more time to the consideration of the virtues of the steam car, which he admitted to be great, but finally decided that the car with which the future development of South Africa was bound up was essentially the petrol car, as the climatic conditions were far from suitable, even to the improved steam vehicles, which he admits are such an enormous advance on the first specimens of that type of automobile with which South Africa became acquainted. Mr. Hennessy is in favour, owing to the high price of petrol in South Africa, of providing cars with two oil tanks, in one of which high grade petrol may be employed for starting, and the heavier fuel used for running after the cylinders have got hot. Mr. Hennessy concludes his paper as follows:—"No one who has any knowledge of the country can doubt that the future of the mechanically-propelled vehicle in South Africa is a great one, and that the engineer and manufacturer, who, at this early stage of motor development out here, takes up the question of designing and manufacturing vehicles suited for our roads, will reap a substantial harvest in the near future as a reward for their energy and foresight."

APPROPOS of the same subject, it is interesting to learn from the *African World* that there are 150 privately-owned cars in Johannesburg, ranging from 12-h.p. cars,

TOURIST TROPHY RACE.—The 14-h.p. James and Brown Car, which has a four-cylinder horizontal engine arranged beneath the frame under the driver's seat. Four speeds are provided and the rear wheels are driven by side chains. In the competition, the car was fitted with wire wheels in order to reduce the weight.

which is the usual power, up to the 30-h.p. vehicle belonging to Sir George Farrar.

THE Hon. Stephen Coleridge, to whose entertaining remarks, anent his conviction by the Andover extortionists, we recently referred, has withdrawn the notice of appeal which he had given. We must say we are sorry.

LONDONERS who have attempted to get on some of the motor 'buses running in London will sympathise with the objections of an Irishman to that form of conveyance, that "they go so fast that nobody can get into them, and moreover never stop for anyone to get out."

AUTOMOBILISTS will experience considerable satisfaction, mingled with a little amusement, at the proceedings of some of the enemies of the movement. A letter from a Mr. Horace Bleakley has appeared in several daily papers pointing out that the motorist's case is likely to be put with cogency and conviction before the Royal Commission on the Motor Car Acts, and calling upon all persons opposed to the movement to write *directly* (expressing their views) to the Chairman of the Commission, Lord Selby. Lord Selby is, no doubt, as everyone will admit, as impartial and judicially-minded a person as could possibly be met with, but if this advice is followed, as we hope it may be, he will find himself overwhelmed with a mass of letters, often probably quite incoherent, representing one side of the case, and an orderly, properly-marshalled statement of facts presented on the other side, and the effect upon his mind can hardly be doubtful. Anything better from the motorist's point of view can hardly be imagined. But Lord Selby has our sincerest sympathy in the tribulation in store for him should Mr. Horace Bleakley's proposal result in the deluge of letters he seems to anticipate.

CLARKSON STEAM OMNIBUS.—This is the first of the new double-decked Clarkson 'buses to be put into commission. The features of the new chassis were described in our issue of September 2nd.

Brockley Hill, Edgware.

Woodcock Hill, Barnet Lane.

Elstree Hill.

TESTING A MOTOR 'BUS.—Before taking delivery of motor omnibuses, most companies naturally stipulate for test runs. The above pictures were obtained on one of these occasions, on behalf of the Victoria Omnibus Company. The 'bus—one of the Swiss built Orion vehicles—started from the Company's garage in Carlton Vale, and was required to travel to Barnet by Brockley Hill, Elstree, and Barnet Lane, taking Woodcock Hill "en route." The journey was accomplished in 1½ hours without a stop, with a load of 24 people on board.

THE Kingston local authorities having failed, as is well known, to obtain the Local Government Board's sanction to the general imposition of a speed limit of 10 miles an hour throughout their dominions, have, as we have already chronicled, again come up to the charge with a demand that the speed of motor vehicles should be limited to 6 miles an hour in certain "tortuous" streets of the town. A second enquiry, under the presidency of Mr. F. J. Willis, one of the L.G.B. Inspectors, was accordingly held at the Kingston Town Hall last week. The usual arguments on behalf of local authorities were put forward, but the case which the Local Government Board will now proceed to decide, appeared to be an almost weaker one than usual. The following are a few of the most salient points of the evidence. One of the leading local witnesses, Dr. Richard Ackerley, of Surbiton, was of opinion that if such a regulation were introduced, the police, in a month or two, would be complaining that they could not regulate the traffic. Police-Inspector Bryce was prevailed upon to admit that a greater number of convictions were obtained under Section 1 of the Motor Car Act against driving to the common danger than under Section 9, for exceeding the specific speed limit, while the L.G.B. Inspector suggested (interrogatively) that the applicants for the speed limitation ought to prove that there were special dangers in the case in question which could not be met under Section 1 of the Act.

ANOTHER local enquiry into an application for a proposed limit of 10 miles was heard recently by Mr. Willis, on behalf of the Local Government Board, at Ealing, the Borough Council of which suburb desire to limit the speed of motor cars through their territory. One of the chief reasons for the application appears to have been that the Mayor of Ealing once or twice in getting out of a tramcar had received "shocks" from seeing motor vehicles approaching—a nice reason, it must be admitted. The local

inspector of police is apparently not in sympathy with the shocked mayor, and stated that only four motor car accidents had occurred in the space of 21 months.

THE autumn manoeuvres of the German Army, which are being carried out with almost more energy than usual this year, and which are, as usual, most carefully supervised by the Emperor in person, are taking place in a particularly difficult country for manoeuvring, the territory involved comprising both banks of the Rhine and the valleys of the Maine and Lahn.

THE Emperor, who acts as Umpire-in-Chief during most of the manoeuvres, is this year following the operations in a powerful motor car, which enables him to get about and keep in touch with the various forces in a way which would be quite impossible on horseback.

The Victoria Omnibus Company's 'Bus, built by the Orion Company. It is this vehicle which figures in our photographs above.

WILLIAM NEWMAN, a motor car driver, was recently sentenced at Slough to a fine of £3 for driving a motor car to the public danger at Eton. As he said he had no money to pay the fine with, he was sentenced to a month's hard labour.

THE Municipal Technical Institute of Belfast is, we are glad to learn, providing technical instruction for motor car drivers, and has arranged an extensive syllabus of lectures and practical demonstrations on the theory, construction and management of motors and motor vehicles.

M. MIGUEL ZAMACOIS has been amusing the readers of the *Gaulois* with a collection of automobile proverbs, which more or less read like a humorous adaptation of Ohlen-dorf to automobile conditions. The first of them is "tell me the price of your auto and I will tell you who you are," with others of the same kind, ending up with an invocation by foot-passengers to a passing automobilist, "*Morituri te salutant!*"

At the Dunlop Tyre Company's meeting last week, Mr. Harvey du Cros, the chairman, informed the shareholders that it was proposed to put up and equip two new buildings at a cost of £30,000 for the making of rubber, the development of the motor tyre trade, and a new branch of the trade, the making of motor omnibus tyres.

LAST week the motor garage of Claud Hamilton Limited, Aberdeen, was destroyed by fire. Fifteen cars were burned, the estimated damage being £8,000. Two of the cars belonged to Lady Gordon Cathcart, one of them having only arrived from London the previous day, for the use of Princess Christian, who was paying a visit to Cluny Castle.

APROPOS of some biographical reminiscences about Professor Ray Lankester and his Continental adventures, an evening paper mentions that "though the Professor once sat all night on the top of Vesuvius during an eruption, and was fired at by Sicilian brigands, the liveliest adventure in his life occurred in Piccadilly, and the worst brigand he ever met was a London magistrate.

A VERY fine example of the reliable running of the modern motor car is presented by the business tour which Mr. Basil Johnson is making with a 6-cylinder Napier through England and Scotland, on behalf of Messrs. S. F. Edge, Limited. The tour commenced on July 19th, and is still proceeding. Almost every day has seen a good mileage record, as much as 290 miles being covered on one occasion, and during the time that has elapsed since Mr. Basil Johnson started on July 19th, the car has covered a total of 4,511 miles, amounting to an average of $91\frac{1}{4}$ miles per day. The tour is having a good effect on the motor car industry, and it provides an eloquent object lesson in the reliability of up-to-date cars, as appointments have been made at various cross-country places days in advance, and the car has regularly turned up punctually.

TOURIST TROPHY RACE.—The 20-25-h.p. Crossley Car, which could not be got ready in time. This interesting vehicle differs considerably from the standard model, for it has a live-axle, three-speed gearbox, and leather cone clutch—features which were adopted to reduce weight. In a modified form, these vehicles will form one of the new Crossley models for next year.

THE London and South-Western Railway Company have extended their motor 'bus service by putting a new motor 'bus on the route between Farnham and Haslemere, a distance of twelve miles, running through Bourne, Hindhead, and Shotter Hill. The new vehicle, which has been built by Messrs. Thornycroft and Co., has a 24-h.p. motor, and is specially designed to tackle the severe hills of the route which it has to negotiate.

SEVERAL other new motor car services have already started, or will shortly be in regular working order, in different parts of the country. Amongst these is one between Leigh and Radleigh, in Essex, another is from Aberlady to North Berwick, by the North British Railway Company, who are employing Arrol-Johnston charabancs, whilst the Great Western Railway Company are starting their service of motor cars to-day between Abergavenny, Crickhowell, and Brecon for mails and passengers.

As we suggested last week, it now appears that the motor 'bus which was had up by the police on the Brighton road and charged with running at 32 miles an hour, was at the time going down Handcross Hill. So far, however, from waggling dangerously from side to side, as alleged by the police, according to one of the passengers who has now come forward and written to the Press, states that the running was remarkably smooth and steady. Perhaps it was the police who could not travel straight.

MR. ALDERMAN WHITLEY, of Sheffield, is a progressively-minded civic. At a recent meeting of the Corporation, he publicly regretted that the Bill enabling the Corporation to run motor omnibuses was being dropped, as he feared that some private company might get the powers. Motor omnibuses are, in his opinion, essential to connecting the various tramway routes, and present many advantages compared with electric trams.

THE popularity of the motor car continues to extend in Royal circles, and last week Princess Christian and Princess Victoria started on an extended motor car tour, passing through Barnstaple to Bath, where they remained for several days, and continuing the journey to Oxford.

A RECENT accident took place at Biggleswade, in which a little girl of eight was knocked down and killed by a mail cart. One of the witnesses—a medical man—called attention (none too soon) to the reckless manner in which children behave in the streets. The coroner observed that had the accident been due to a motor car much greater prominence would have been given to it, and added that, in his experience, only three fatal accidents had been caused by automobiles in the county of Bedford.

PUBLICATIONS RECEIVED.

A Man and a Motor, and Subsequently a Wife. By Chas. E. Bradshaw-Needham. London: The Clements Publishing Company, Portugal Street, W.C. 6d. edition.

Announcements, Educational and Social, for the Session 1905-1906. Northampton Institute (City Polytechnic), St. John Street Road, E.C.

Catalogues.

Mann's Patent Steam Cart and Wagon Company, Limited. Hunslet, Leeds.

Storage Batteries, &c. Hart Accumulator Company, Limited, Stratford.

NEW COMPANIES REGISTERED.

[Taking powers to manufacture or deal in motors, motor cars, or accessories, either as their principal or part of their objects.]

Commercial Cars (Limited), 79, Gracechurch Street, E.C.—Capital, £20,000 in £1 shares (10,000 7 per cent. cumulative preference). First directors, H. C. B. Underdown and H. G. Hutchinson.

Iris Cycle Company (Limited).—Capital, £100 in £1 shares. To carry on the business of manufacturers and vendors of cycles, motors, &c. The company contemplates certain dealings with the Premier Cycle Company (Limited).

Mid-Sussex Motor Company (Limited), Broadway, Hayward's Heath, Sussex.—Capital, £3,000 in £1 shares. Object, to acquire the business of motor omnibus and motor carriage proprietors, carried on by C. W. Wood, H. Finch, M. G. S. Pitcher, A. R. Pannett, G. R. Godley, and W. F. Comber, at Hayward's Heath, Sussex, as the Mid-Sussex Motor Syndicate. First directors, M. G. S. Pitcher (chairman), C. W. Wood, and G. R. Godley.

Yorkshire Mutual Garage (Limited), Brown's Chambers, Commercial Street, Leeds.—Capital, £10,000 in £1 shares.

East Kent and Herne Bay Motor Omnibus Company, Limited—Capital, £5,000 in £1 shares. First directors, H. E. Ramsey (chairman), N. Rowden, and A. G. Iggulden. Bank Chambers, High Street, Herne Bay, Kent.



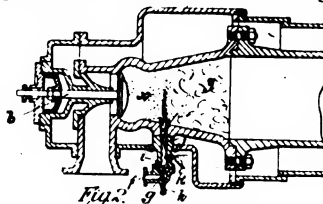
BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

22504. 19th October, 1904. Improvements in Starting, Stopping, Speed-Controlling and Reversing Gear. Henry S. Hele-Shaw, F.R.S., Professor of Engineering, Liverpool University, Liverpool. In this type of gear there are two clutches and intervening epicyclic spur-gearing, the clutches having discs for their frictionally engaging surfaces; one of the two clutches, termed the coupling clutch, serves when required to directly connect together the driving and driven shafts, and the other clutch, termed the pinion clutch, serves when required to hold the pinions of the epicyclic gear against rotation. There are seven figures. Fig. 1 is a sectional elevation. The driving shaft, 1, is made hollow for a considerable part of its length, and the driven shaft, 2, enters the hollow part, 3, of the driving shaft, and is suitably bushed in a bush, 4, therein, thus ensuring absolute alignment of the two shafts. The casing, 5, which encloses the working parts in a bath of lubricant is divided into two parts by a transverse flanged joint, 6, and forms the outer and fixed member of the pinion clutch which controls the rotation of the pinion axes. The two shafts pass through the ends of the casing through bushes, 7, and the casing is

the flange, 14, of the inner member of the pinion clutch; the three presser pins, 17, which engage with the presser plate, 18, are elastically controlled by the springs, 19, carried in the spring boxes, 20. The pins, 17, pass through the ends of the spring boxes and the pins, 18, through bushes, 20; the opposite ends of each of the springs press on the collar of 17 and on the head of 18 respectively; the pins, 17, are screwed into the presser plate, 17. The part, 14, flange, 14, spring boxes, 20, bushes, 15, and a stiffening ring, 21, are preferably cast integral, the ring, 21, serving to support the ends of the pins, 15, and bind them and the spring boxes together; there are usually three spring boxes, 20, 120° apart, and three pinions between each pair of spring boxes. Each of the plates, A, has a series of internal teeth, a, which engage in featherways formed on the inner members of the respective clutches, and each of the plates, B, has a series of external teeth, b, which engage in the featherways, d, on the outer members. Each of the pinions, 16, engages with the wheels, 10 and 12. The axial movement of the inner member, 14, of the pinion clutch on the driving shaft is conveniently obtained by means of a forked lever, 22, and pivoted ring, 23, the latter working between guides provided with suitable ball races, 24. The 1 lever is operated by means of an operating 25, moving over a quadrant, 26.—August 30th,

3980. 18th August, 1904. Improvements in Internal Combustion Motors. Dugald



practically fluid-tight. The driven shaft, 2, has a flange, 8, to which is attached the outer member, 9, of the coupling clutch, and within the member, 9, is formed the internally toothed outer spur wheel, 10; opposite to 9 the inner member, 11, of the coupling clutch is formed on the driving shaft, 1, this member, 11, carrying the externally toothed inner spur wheel, 12. The outer member, 13, is formed on the inside of the casing, 5, and opposite this is the inner member, 14, of this clutch, which runs freely on the driving shaft, and carries the axes, 15, of the pinions, 16. Axial movement in the one direction causes engagement of the friction discs of the coupling clutch, and so directly connects the shafts together; whilst axial movement of this part in the opposite direction releases the discs, and causes the engagement of the friction discs of the pinion clutch, and so holds the pinion axes against rotation, with the result that the direction of rotation of the driven shaft is reversed; in the mid axial position of this part the friction discs of both clutches are free. The axes, 15, of the pinions are carried from the bosses, 15, formed on

Clerk, Little Woolpits, Ewhurst, Surrey; Henry N. Bickerton, and Henry W. Bradley, both of Wellington Works, Ashton-under-Lyne, Lancs. The object of this invention is to improve the rapidity of firing of the charge in an internal combustion motor, in which cooled exhaust products are added to the charge before compression. It consists in providing two or more igniters in the combustion chamber in such a way that the rate of inflammation of the charge is increased, and secondly in effecting the ignition by means of an igniter and a flame jet so arranged that the propagation of the inflammation of the charge takes place away from the added fluid, and does not tend to force mixture into the added fluid. There are two figures. Fig. 2 is a section of a portion of an engine with a device for projecting the flame into the forward part of the combustible mixture near the compressed exhaust gases. Simultaneously with the charging of the cylinder by the valve, 6, some combustible mixture is passed by a passage, 7, past a non-return valve, 8, and passage, 9, into the combustion chamber in order to fill the

passage, 9, with combustible mixture. A strong grating, 1, is situated between the valve and a sparking plug, 4, to prevent back firing and to prevent the temperature of the valve, 6, becoming too high. After the compression stroke of the piston, the mixture in the passage, 9, is fired by the igniter, 4, the flame produced being projected into the combustion chamber whereby the charge contained therein is ignited, inflammation taking place backwards. The valve, 6, may be controlled positively in any convenient manner or by a spring, 4, of such strength as to permit the valve to open under the charging pressure of the mixture supplied through passage, 9. The combustible may be supplied to the valve-controlled passage, 9, ignition being effected as before. The stippling, x, and the lines, y, represent respectively the combustible charge and the inert fluid after the compression stroke has been completed. The specification also describes and shows an arrangement in which two sparking plugs are placed in tandem in the combustion chamber to effect a more rapid ignition of the charge.—August 30th, 1905.

Patent Specifications Published.

Applied for in 1904.

Published September 21st, 1905.

- 12,111. G. MACBETH AND J. DRING. Variable speed mechanism.
- 19,799. L. M. J. LEVAVASSEUR. Intl. combn. engines.
- 19,867. WOLSELEY CO., LTD., AND H. AUSTIN. Intl. combn. engines for ships.
- 22,777. S. RUSSELL. Oil lamps.
- 22,980. J. JACKSON. Spring wheels.
- 23,126. H. ASHTON. Driving belts.
- 23,138. J. MONTBITH. Tyres.
- 23,280. E. F. BRADLEY. Carburetors.
- 23,318. G. PILKINGTON. Silencers and exhaust chambers.
- 23,438. H. C. L. HOLDEN. Magneto-electric apparatus.
- 23,697. I. CLIFFORD. Tyres.
- 25,205. J. A. FORRENS. Carburetors.
- 27,149. P. G. TACCHI. Driving gear.

Applied for in 1905.

Published September 14th, 1905.

- 6,197. T. H. AND E. GARDNER. Fuel feed.
- 6,112. A. FARKAS AND J. KIEFFER. Driving mechanism.
- 11,773. F. R. SIMMS AND R. BOSCH. Magneto-electric ignition.
- Published September 21st, 1905.
- 229. H. LUCAS. Lamps.
- 290. J. RICHARDSON. Elastic tyres.
- 1,785. H. LUCAS. Horns.
- 2,000. A. J. ALLEN. Wind shield hinges.
- 5,969. W. S. JOHNSON. Self-propelled vehicles.
- 6,469. SOC. DES AUTOMOBILES "LA MAGNETIQUE." Electro-magnetic speed-gear.
- 7,310. E. CAPITAINE. Process for maintaining temperature in a gas producer.
- 8,526. J. W. CANN. Driving, braking, and spragging mechanism.

The Automotor Journal, September 30th, 1905.

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MONT VENTOUX HILL-CLIMB.—General view from the Observatory, at the top of the climb up Mont Ventoux, particulars of which race we gave in our issue of last week. Note one of the cars appearing like a speck coming up the road by the side of the mountain.

C

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LUCERNE, F. Eisenring, Place de la Chapelle.
MADRID, Editores Romo, Calle de Alcaba 5.
MARIENBAD, E. A. Gotz, Buchhandlung.
MARSEILLES, Mme. Bayle, 1 Rue de Noailles, and H. Blancard, 17 Rue Paradis.

DIARY OF FORTHCOMING EVENTS.

British Events.

1905.
Sept. 28-29-30 Motor Boat Burnham-on-Crouch (B.M.B.C.).
Sept. 30 ... Auto Cycle Club Race Meeting, Crystal Palace.
Oct. 7 ... Albert Brown Cup (Motor Cycling Club).
Oct. 7 ... Scottish A.C. 100 Miles Run.
Oct. 14 ... Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17 *Quarterly 100 Miles Trials.
Nov. 17-25 ... Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.
Oct. 1 ... Chateau Thierry Hill Climb.
Oct. 14 ... Vanderbilt Cup.
Oct. 15 ... Gaillon Hill Climb.
Oct. 22 ... Maisons-Laffitte Motor Boat Races (L'Auto).
Nov. 3 ... French Voiturettes Trials (L'Auto).
1906.
Jan. 26-30 ... Calcutta Motor Trials.

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

Triumphant Development.

AFTER all the cry that has been made about the magnificence of the French industry, and the immense number of cars the French manufacturers are yearly turning out, it would appear that British manufacturers are not only now running their French rivals very close but are even beating them out of their best market, the United Kingdom. It is true that the opposite impression has hitherto prevailed, but it would seem that this is to a large extent a mistaken one, and based on the undoubted fact that the exports of British manufactured motor cars are negligible, while the imports are noteworthy. As usual, conclusions based on such data are unreliable, and it appears that the real reason why Great Britain imports motor cars, and practically does not export them, is that the demand for motor vehicles in the British Islands is so great, and the purchasing power of its population so considerable, that practically the whole of the home output is absorbed at home, while in addition a large import of foreign cars is needed to meet the requirements of the British market. A French daily contemporary—which has given its attention to the figures we recently gave on this subject—has sounded a note of warning—we might even say alarm to the French manufacturers. Considering the present position of the British industry and that we have been France's best customer, this is not surprising. The British public at present are credited with owning 32,000 motor cars, being an increase of 13,657 during the last 7 months. At one time the bulk of the English market was supplied by imports from abroad. Now English manufacturers are supplying the majority of the demands

made by customers in the British Islands. We are warranted in concluding that in a short time to come practically the whole of the requirements of the United Kingdom will be supplied by its own manufacturers. This is a most encouraging result. The British Empire Motor Trades Alliance, in a letter we have received drawing our attention to our French contemporary's article, appear to be in favour of protection. At any rate, they desire to "check the imports" and to "increase the exports." Protection is a vexed question on which we do not propose at present to enter, but if practically the whole output of British manufacturers is being taken by British customers the advantage of exports at the present moment is not apparent. The splendid growth to which we have referred above is at any rate evidence that even without protection the British motor car industry is now in a position in which it can most effectively hold its own.

What is the "Trophy"—the Tourist Trophy?

SOME interest attaches to the question of what the Tourist Trophy itself really is. Nobody in fact seems to know. Presumably there is a trophy, for have not some forty odd cars been racing in the Isle of Man to win it? One of them has won it, and should, in consequence, be in a position to carry it home in triumph. But what is it that the Arrol-Johnston Company will receive? Again we repeat, no one knows, and there is no one to whose eyes the elusive trophy has revealed itself in material form. The trophy which crowned the winner of the Olympic races of old was simply a garland of wild olive, but there is reason for supposing that the award which the winner of the most modern racing event has won is even more exiguous and impalpable. In fact there are doubts whether it has as yet really materialised. Perhaps it is merely a conception which will crystallise shortly into something artistic; but that some forty odd competitors should race round a long course with great verve and energy for a trophy, that at any rate at the time of the race, enjoyed, as far as we can ascertain, no actual existence, is a situation which possesses elements of comedy which should appeal to some of our humorists.

Is it fashioned of filigree golden?

Is it made of the vulgar tin?

A relic of ages olden

'Ere the motor car came in?

None know for none have beholden

That trophy all strove to win!

Recognising the Necessary.

It is an encouraging sign that borough and county surveyors are approaching the problem of rendering our roads properly suitable to modern traffic conditions, at least this is what may be gathered from the yearly reports of several of them which are now coming to hand. Quite a number, it must be admitted, of the surveyors still stoutly maintain that the motor car not only distributes but actually makes dust. We have contended against this misapprehension sufficiently often, but after all it does not greatly matter, as the surveyors seem more and more to be determined to grapple with the problem. They are almost unanimous that the dust-laying preparations, with some of which the public has become so familiar, merely act as palliatives. They do not, in most cases, produce any permanent effect, and require such frequently-renewed applications that the expense becomes equivalent to that involved in making up the road originally of

dust-diminishing materials. The general tendency seems to be more and more in favour of adopting these latter methods, *i.e.*, employing materials treated with tar for originally constructing the road surface. The question now, apparently, is merely one of initial expense. We say initial, as there is every reason to believe that though the original expense is greater the ultimate saving is likely to be such as to prevent the burdens of the rate-payers from being in any way increased, while the absence of dust annoyance, which is really hardly estimable in terms of cash, will be one of the benefits thrown in. Mr. Angell, the surveyor of the Beckenham Urban District Council, who has devoted considerable attention to the question, and who is entirely in favour of making up roads with tar-impregnated road metal, has got out some relative costs in regard to the principal materials. According to him, the expense of making up a road with flint saturated with tar amounts to 12s. 6d. per cubic yard, 17s. and 20s. being the figures for limestone and slag similarly treated. The question will have to be faced seriously. We believe it will be demonstrated before long, as we have suggested above, that the ultimate saving due to the use of what we may generically describe as tar-mac materials, will practically neutralise the increased original cost. In any case, it will be impossible to maintain the old conditions. They were far from ideal in summer weather even before the advent of the motor car, and only fossilized reactionaries can seriously propose to abolish the automobile rather than improve our roads. We are convinced that all that is needed is a sufficiency of pioneer experiments, and it is encouraging to find that the advisers of local authorities are making them.

The Climax of the Ludicrous.

To many motorists, the name of Chirk will recall the pleasantest recollections, for from the magnificent castle looking down through its glorious timber across the Shropshire plains to the Wrekin and the Longmynd, may be obtained one of the most glorious views in the British Islands. In future, however, probably no automobilist will ever hear the name of Chirk without laughing, for it is the contrast of the ridiculous with the sublime that provides the elements of the truly ludicrous, and such a contrast the deliberations (if such they can be called) of the Chirk Rural District Council certainly furnish when we recall the romantic scenery amid which they are held. Inspired by a communication from the "Highways Protection League" some of the members of the Chirk District Council have gone far towards immortalising themselves by anti-automobile mania. One of them, apparently a doctor by profession, to wit Dr. Lloyd, calmly stated that more people were killed by "ruthless motorists" than by any other section of the community, a statement which it is needless to point out is in flat and flagrant contradiction of statistics, and added the further entertaining proposal that everyone who drives a motor car should be insured to the tune of £2,000 against killing anybody. Finally, the Chirk medico reached the crowning height of absurdity by maintaining that even when it stood still a motor car was a danger! One somewhat more moderate councillor supported the insurance proposal, reducing, however, the amount of the insurance to £1,000. And then came the anti-climax! Councillor Parry, with funereal mien, slowly rose from his place, and, in solemn and sepulchral accents, declared, amid a solemn and portentous silence, that one of his *hens* had been killed by a motor car.

DUST TRIALS AT MAIDENHEAD.

ALTHOUGH the Automobile Club has devoted some attention to the abatement of the dust nuisance by conducting one or two trials of a semi-private character in the past, yet until last week it had not made any large

stretch of the Bath Road. Dust trials are essentially difficult events to carry through to a successful issue, for they are not altogether in the nature of a competition among cars. Even at the

MAIDENHEAD DUST TRIALS.—The Dennis experimental car fitted with boards to isolate the dust raised by the wheels from the effect of the draught under the car. Horizontal plates behind the wheels will also be noticed in the illustration.

which passed before the camera was notable for some distinctive features likely to have an influence on its behaviour in raising dust, there is no doubt that many

over the course, it was not easy to estimate small differences, although it soon became evident that certain cars might be classed as good, and others as bad, from

MAIDENHEAD DUST TRIALS.—An Argyll Car coming up the course.

valuable and instructive conclusions should be available. In the somewhat promiscuous selection of cars, each of which made four successive runs at different speeds

the "dusty" point of view. Speed in itself made a very great difference, but a car which was better at one speed appeared to be better at other speeds also.

MAIDENHEAD DUST TRIALS.—Mr. Wellington's Spyker going over the course. The view on the right was taken after the front mud-guards had been removed.

Mr. C. R. de la Salle's 18-h.p. Siddeley.

A passing tourist car, not taking part in the trials.

MAIDENHEAD DUST TRIALS.

Although it was understood that a novel invention which "lays all the dust which may be raised by the car fitted with it" would be tried, this apparatus failed to materialise, and the only special car was one sent by Messrs. Dennis Bros. This car was fitted with long boards fastened to both sides of the frame, and reaching nearly to the ground. The boards extended for the full length of the car, and thus isolated the space between the wheels from the wheels themselves. No advantage was apparent from this admittedly impractical type of construction; the underpart of the car was comparatively open, and it was difficult to judge what effect the boards had on the dust raised by the front wheels, for, as they were shod with narrow-tread Collier tyres, they raised very little. In addition to the side boards, the Dennis car also had small horizontal plates—which are visible in our illustration—fitted behind each wheel, but these did not seem to prevent the dust from spreading.

Among the least dusty of all the cars present were Mr. Wilson's 15-20-h.p. Spyker, Mr. F. Wellington's 15-20-h.p. Spyker, and Mr. R. C. H. Harrison's 12-h.p. Sunbeam. All these cars were noticeable for their high open build. The Spyker cars are of the live-axle type, and on the Sunbeam car the side-chains were enclosed in cases providing the well known "little oil bath." Mr. Wilson's Spyker car—on which it was our pleasure, through Mr. Wilson's courtesy, to journey down to the meeting—will be remembered as the "dustless" car of the British Automobile Commercial Syndicate's dust trials at Luton—which we described in our issue of July 22nd, 1905—and during the run we had another

opportunity for taking note of the particularly dustless character of these vehicles—a feature mainly due to the height of the machinery from the ground, and to the efficient manner in which the mechanism is encased on these quiet, smooth-running vehicles. The only difference between this car and Mr. F. Wellington's car was the presence of non-skid bands on the rear wheels of the former; thus fitted, Mr. Wilson's car seemed the less dusty of the two.

As a final test, the judges asked Mr. Wellington to remove the front mud-guards from his car, and under this condition there was a noticeable improvement in its performance. The front mud-guards were not in this case fitted with "flaps," so the improvement is the more remarkable, and one of the useful points taught, therefore, by these trials is that motorists would do well to make a practice of fastening the flaps of their mud-guards up to the step on dusty days in order to eliminate, as far as possible, their disturbing influence.

It is, of course, in the construction of suitable roads that the ultimate solution of the dust problem will be found. Meanwhile, every effort towards improving the dustless qualities of cars is most commendable, and one of the surest ways of doing this is by drawing attention to the differences which exist between standard makes of vehicles. It is the one blemish on a good car that it may, even while being driven considerably, cause annoyance to others by the dust it raises, and the determined efforts of everyone connected with the industry and sport to reduce this nuisance will do more than anything to suppress hostile feeling towards the automobile movement.

MAIDENHEAD DUST TRIALS.—The cars waiting their turn in Maidenhead Thicket.

A 1906 MERCEDES CAR.—THE NEW 70-H.P. MODEL.—PART

SOME STARTLING MINOR DEPARTURES.

EVERYONE is naturally very keen on knowing, at the earliest possible moment, what new features are being introduced by the largest makers on their latest vehicles. This being so—and being particularly so when Mercedes cars are in question—it is with great pleasure that we now give the following illustrated description of next year's 70-h.p. Mercedes model. The first chassis of the kind has quite recently arrived from the celebrated Cannstatt factory to the order of Mr. Harvey Du Cros, junr., to whom we are indebted for the opportunity that has been afforded us, at the London premises of the Ariel Motor Company, of making a thorough examination of it, and of taking the accompanying photographs. This 1906 model has been constructed to take the place of the well-known 60-h.p. vehicles, so that no more of that famous type of car are to be built in future.

In many important respects, startling departures have been made from previous practice, and consequently this chassis cannot fail to attract a considerable amount of attention. First and foremost, one instinctively refers to the gear-box, though possibly even more strikingly novel is the carburettor, for the gear-box to a certain extent resembles the design which was first introduced by the Mors Company, but there is only a very remote similarity between the new carburettor, and any other type of multiple-jet carburettor with which we are acquainted. Not only does the "gear" give a "direct-through-drive" on the top speed, but there is a second pair of bevel wheels for transmitting the power from the lay-shaft to the differential

counter-shaft, and the size of the gear-box has been reduced as much as possible. On the earlier 70-h.p. cars, which were built at the end of last year, and were described in our issues of December 24th, 1904, and February 4th, 1905, it will be remembered that separate casings enclosed the change-speed-gear and the differential with its bevels. Now, however, all these parts are contained in a single gear-box. Other novel characteristics are also possessed by the transmission-gear, all of which will be dealt with in due course.

Briefly enumerating, before actually describing, the other chief departures that have been introduced on this chassis, a few words should be said about the carburettor, and attention should be drawn to (1) the method adopted for fixing the springs to the axles; (2) the means that are provided for adjusting the foot-operated brake-bands; (3) the modified construction of the main-clutch casing; and (4) the pressure-feed

device for refilling the hand-operated lubricator. The carburettor has no less than four spray-jets, one of which is solely used when the engine is running "light," while the other three are brought into operation successively as the throttle-valve is opened wider and wider. Another noticeable point is that no attempt is made to warm, or to dry, the air that is drawn into the carburettor, the only heating device being a water-jacket that surrounds the four adjacent mixing-chambers. Mention, too, should be made of the fact that there is no "auxiliary-air" supply of any kind, and that there is a special mechanism fitted to the car by which the flow of petrol, both to and from the float-feed-chamber, can be entirely cut off by a lever on the dash-board.

In the main, the chassis does not differ materially from those of the same make which are already so familiar to readers of THE AUTOMOTOR JOURNAL, and—as our illustrations will show—its general appearance immediately stamps it as being a Mercedes. The engine is similar to that on the previous 70-h.p. model, with its gear-wheels enclosed in a neat casing in front, and with ball-bearings for the crank-shaft where that shaft is carried by three bearings in the crank-chamber.

The wheel-base is 11 ft. 1½ ins., the track is 5 ft. and 4 ft. 10½ ins. In front, the wheels are shod with 910 by 100 mm. Continentals, and the tyres on the driving wheels are 920 by 125 mm.

Our Illustrations.

For the convenience of those who wish to obtain a good general idea of this chassis by merely turning

their attention to our illustrations, the following brief references will be found useful:—

The front view, given in Fig. 1, shows the steering-heads, the front axle with the connecting rod behind it, the catch, G, for holding the starting-handle, and the spring-boxes, F, for fixing the springs to the axle.

Fig. 2 is a view from above the gear-box, the upper portion of which has been removed to show the interior.

In Fig. 3, one end of the rear-axle is prominent, and the method of securing the spring in place, above it is particularly clearly demonstrated. In this view, a good idea is also obtained of the radius-rod and the hub-brake.

Fig. 4 shows the carburettor with its throttle-valve and the induction-pipes. These parts are first seen assembled together, and are afterwards shown dismantled sufficiently to render clear their individual construction.

Figs. 5, 6, and 7, are three radically different views of the complete chassis. Together, they enable the position

Fig. 1.—Front view of the 1906, 70-h.p. Mercedes Chassis, showing the method of fixing the springs, and the catch for holding the starting-handle vertical.

when moved forward or backward; the rod C^3 causes the spur-wheels C^2 and C^1 to slide into mesh with their respective wheels B^2 or B^1 for similarly giving the second or the first speed; and the rod D^1 serves the simple duty of sliding the intermediate spur-wheel D into common mesh with the wheels B^1 and C^1 , to give the "reverse."

One new feature of the transmission mechanism is that the ends of the differential countershaft have long plain bearings, instead of ball bearings, fixed beneath the side members of the frame. At the extreme outer end of these plain bearings there is, however, a row of balls quite close up to the large chain-sprockets.

The Side Springs.

All four springs are fitted centrally with special "boxes" that are in turn secured to the axle by

a single nut. The arrangement adopted is visible in Fig. 1, and—*even more clearly*—in Fig. 3. The spring box, F , fits down upon a slightly recessed face above the axle, which is at this point sufficiently stiffened up to allow the single bolt to pass through it. The spring is thus held in place by the single nut, F , beneath the axle.

The New Carburettor

In Fig. 4, the float-feed chamber, H , is easily recognisable by its shape. The top of the ordinary central needle, H^1 , which automatically cuts off the fuel supply and thus maintains a constant level inside the chamber, will also be readily distinguished. To the right of the needle, H^1 , there is, however, another needle, H^2 , which is of a somewhat similar form, though it is normally held up by the weak external spring that surrounds its upper

Fig. 2.—The new Mercedes change-speed-gear, fitted to the 1906 70-h.p. chassis. View from above, showing the entire mechanism.

and shape of every important part of the mechanism to be seen. And, finally, Figs. 8 and 9 show the engine—from both sides—fixed in place in the chassis.

The Change-Speed-Gear.

Referring more particularly to Fig. 2—but useful views of the complete gear-box will also be found in Figs. 6 and 7—it will be observed that the gear-box is made in two parts, and that ball-bearings are employed throughout. The lower half is fixed by two brackets to the side members of the pressed-steel frame, and by two special bolts to the cross-member behind it. In the upper portion, an easily removable lid is fitted above the sliding wheels on the shaft, C , this lid being merely held down in place by four spring catches (see Fig. 7), but being rendered oil-tight by rubber packing.

The unusual features of the gear are that the rear end of the driving-shaft, C , is partly supported by the bridge, A^1 , which spans the differential-countershaft, and that the two bevel-pinions, A and B , are both capable of driving the differential-gear. The pinion, B , serves to drive the car when either of the sliding spur-wheels, C^1 , C^2 , or A^3 are brought into mesh with their corresponding wheels, B^1 , B^2 , and B^3 , and it is, therefore, employed for the 1st, 2nd, or 3rd speed, respectively. For the 4th speed, however, the wheel, A^3 , engages with the internally-toothed gear-wheel, A^2 , which is solid with the bevel-pinion, A , and hence the lay-shaft then merely revolves idly and a direct drive is established between the shaft, C , and the pinion, A . Normally, of course, the wheels, A and A^2 , revolve idly about the shaft, C .

The gear is operated in the well known manner by a single hand-lever, which can be moved forwards or backwards in either of the alternative slots in its quadrant, and by the three rods A^4 , C^3 and D^1 . The rod A^4 merely controls the single wheel A^3 to give the third or the fourth speed,

Fig. 3.—One end of the rear-axle on the new 70-h.p. Mercedes Car. This illustration shows the manner in which the side springs are fixed to the axles.

Fig. 4.—The novel type of carburettor, which is employed on the 1908, 70-h.p. Mercedes model. On the left, it is shown complete with its throttle-valve and the branched induction-pipe. To the right, the Float-Feed-Chamber with the four Jets, the Throttle-Valve-Casing with its four-fold Mixing-Chamber, and the moving member of the Throttle-Valve are each seen separately.

projecting end. This needle, H^2 , controls the flow of the petrol from the chamber, H , to the jets, J , M , L , and K , and can be forced downward (to cut off the feed) by the cam-disk, H^3 , which also simultaneously presses the needle, H^1 , down upon its seat. The disk, H^3 , is connected up to a small hand-lever (H^4 , Fig. 7) on the dashboard, and thus the driver can, at a moment's notice, interrupt the fuel-feed to and from the carburettor.

The four jets are all arranged in such a way as to receive an equal feed of petrol, but the size and number of the holes in them varies considerably. Thus the jet, J , has but two small holes drilled through its wall, whereas the jet, K , has four large holes and the other jets have two holes each. The jets are closed at their upper ends, and the petrol only passes out radially.

The mixing-chamber, N , which forms the lower portion of the throttle-valve, and is solid with the branched induction-pipe, is divided off vertically into four entirely distinct compartments—one above each jet—and each compartment terminates at its upper end in the cylindrical throttle-valve casing. The entire chamber, N , has a water-jacket, fed by pipes that are connected to the unions, N^1 , and its four compartments are all quite open to the atmosphere beneath. At their upper ends, the four compartments form the ports, J^1 (a mere slit), M^1 , L^1 , and K^1 , which are covered and uncovered as required by the rocking inner member of the throttle-valve—a view of which member is given on the extreme right in Fig. 4.

Surrounding the jet, J , the mixing-chamber passage is



Justice (?) by the "Great Unpaid."—There is one point about the policemen who manage those "measured furlongs" which the profane have come to designate as police traps. They are imbued with a splendid impartiality as regards the victims whom they hale before the magistrates. Wealth we have long known has no effect on the question. Rank and eminence counts for next to nothing. Even the Duke of Fife and the Prime Minister have fallen victims. Now it appears to be the turn of our *littérateurs*. A few weeks ago, the Hamp-

small in diameter, but around the other three jets the passages are of considerable area. A very considerable injection action is, therefore, obtained when the jet, J , alone is in operation, and thus ample carburation can be maintained even though the volume of air drawn into the engine is reduced to a minimum. The action of the throttle-valve, when first slightly opened, is to bring the curiously-shaped port, J^2 (in the moving member), opposite to the slit, J^1 , before any of the ports, K^1 , L^1 , or M^1 , are uncovered. When the engine is running quite light, the required amount of mixture can then be obtained to a nicety merely by altering the relative position of the port, J^2 , and the slit, J^1 .

For giving more power, the throttle-valve is moved further in the same direction and then the V-shaped edge, K^2 , of the moving member begins to uncover the port, K^1 —bringing the jet, K , into operation—simultaneously as the port, J^2 , gradually reduces the feed through the slit, J^1 . Further movement opens the port, K^1 , fully, and then commences to open the port, L^1 , while finally, after that port is wide open, the port, M^1 , becomes uncovered. Jet after jet is thus successively brought into action until, whereas at first the small jet, J , was alone in operation, all the three large jets, K , L , and M , are supplying petrol to the engine.

All the air required by the engine enters direct from the atmosphere at the bottom of the mixing-chamber, N , coming up around the metal dish that is seen in place beneath the jet-fitting.

(To be continued.)



shire police caught a Tartar in the Hon. Stephen Coleridge. Now a similar (probably unpleasant) capture has fallen into their net in the shape of Sir Arthur Conan Doyle. Needless to say, having a powerful pen, he has retaliated in the columns of the daily press, and has given the whole system a satisfactory wiggling. But what a farce the whole thing is. The two most recent and most notorious captures are two of the most humane and considerate men in the country and the most unlikely to ever drive to the danger of the public.

AN 18-H.P. WHITE STEAM CAR—THE 1906 MODEL.

Fig. 1.—View of the 1906 White Chassis, from the "near" side, with the bonnet removed.

EXCELLENT in every way as is this year's 15-h.p. model, the manufacturers of the White steam cars have again—true to tradition—succeeded in showing the motoring public that they—although practically alone and unassisted in the development of a distinct type of vehicle—can fully hold their own with steam vehicles in competition with the combined efforts of the numerous builders of petrol cars. Their new model has each year been a sure sign of the restless activity of this most progressive firm. Good as was even their first two-seated runabout—astonishingly good in comparison with motor cars of that day—yet each and every new type has been far better, and the latest is no exception to this now well-recognised rule.

It naturally takes some time for motorists, or would-be purchasers, to overcome the suspicion—and even the prejudice—that they entertain against any unorthodox type of car, and it is hardly to be wondered at if they fight shy of those which work upon a totally different principle to the cars that are owned by their friends. This being so, it is nothing short of remarkable that

such a large number of White steam cars should have been sold in this country, and, if any real proof were still needed to convince the sceptic of their great merits, no more positive evidence than this could well be offered. As it is, however, even the most ardent advocate of, and adherent to, the petrol car is now compelled to have a good word for the "White," and even the driver who prides himself upon the speed of his 30-40-h.p. petrol vehicle knows that a "White" can travel too. This year's model gives luxury, speed, and is a first-rate hill-climber, but in each of these respects that which has now been brought out for 1906 is even superior. It is, in fact, unquestionably destined to popularise "steamers" amongst those who make a point of buying the very best cars.

Curiously enough, in view of its greatly improved appearance, less change has been made in the mechanism this time than during any previous year. This is not only striking as a fact, however, for it has a very real significance as well. It shows that the gradual process of development, which is inseparable

Fig. 3.—View—looking down from above—of the 18-h.p. White Chassis.

Fig. 2.—The new 18-h.p. White Chassis, as seen from the "off" side, showing the modified arrangement of the flue which now leads the products of combustion out beneath at the back.

from all new inventions, has now been completed, and that a satisfactory solution of any minor weaknesses, or original difficulties, has been arrived at. Another interesting point that is brought home by a first glance at the new chassis, is that it might now be easily mistaken for that of a petrol vehicle. Were it not for the centrally-placed generator—which is obviously too big for a petrol tank—and for the absence of a gear-box between the engine and the rear-axle-casing, the casual observer might easily be excused such a mistake.

The most striking difference in the new model is that it has a side-entrance body, and that the chassis no longer offers any restrictions to the shape of the body. This very important result has been attained by substituting a "down" flue for the "side" flues hitherto employed, the hot gases from the generator being now conducted down again, around outside the generator, whence they are finally led away to the atmosphere from beneath the body at the rear. Naturally, moreover, the length of the chassis has been increased considerably to take full advantage of this novel disposition of the flues, and

the net upshot of this new arrangement is that one of the most comfortable, and easy riding, vehicles on the market has been produced. The wheel-base is 9 ft. 6 ins., instead of 7 ft. 6 ins., the track is still 4 ft. 8 ins., the springs are once more increased in length, and the wheels are shod with 870 by 100 mm. tyres.

Our first illustration shows one of these cars fitted with an American, Limousine body, and this photograph gives a fairly good idea of the handsome appearance of the new cars. For the English market, however, the finest and best-finished class of bodywork that can be obtained in *this* country is being adopted, and great care has been taken in this respect. A very artistic design has been chosen, and every endeavour has been made to render the car a veritable carriage *de-luxe*.

In our other illustrations the chassis is shown from four different points of view. These taken in conjunction with one another giving an excellent idea of the general construction. In Figs. 1 and 2, it is seen from either side, while Fig. 3 and 4 are views from above and

Fig. 4.—The 1906 White Chassis, as seen from beneath; in this view the simple nature of the transmission mechanism is clearly demonstrated.

beneath respectively. Subscribers to this JOURNAL who file their back numbers, and can therefore look up the full description which we gave of the 15 h.-p. model in our issues of 10th and 17th December last, will find it interesting to compare the illustrations then given of the 1905 car with those photographs that we now reproduce. That previous description is also in very large measure applicable to the new model, and we might further remind our readers that we had before that time dealt in no small detail with the White steam system, both from the constructional point of view, and from that of a driver; the last mentioned article, entitled "A Successful Steam Touring Car, and the Reasons of Its Success," was published on 20th and 27th August last year, and was written after we had had some personal experience in driving one of these cars for a time ourselves.

Dealing now with the other novel features that have been embodied, they may, for the most part, be summed up in three short sentences: Everything is stronger. More power is available. Greater all-round efficiency has been attained. There is, however, an important alteration in the burner, to which most of the air has hitherto found access from beneath. It is now closed in entirely, and all the air that is required by it enters through the induction tube around the fuel-jet. As a result, the openings through which the combustible mixture passes from the burner itself are larger than they have been formerly, and one advantage is that the fire is even less likely to be influenced by disturbing atmospheric influences (in rough weather) than before.

To mention just a few small details that add to the capabilities of the car, and largely account for the greater power that is available, attention might be directed to the larger vaporiser, the stronger engine, the shorter radius-rods, the compensated side brakes, the heavier transmission mechanism, and the improved steering-gear. Useful modifications have also been made in the lubricating system, and in the way of fitting the engine with shields to reduce loss of heat by radiation from the cylinders, while those who are well acquainted with the 15-h.p. model will recognise—even from our illustrations—that the valve-gear above the cylinders, for admitting high-pressure steam to the low-pressure cylinder when starting, is considerably more substantial on this new car.

This 18-h.p. car is, naturally enough, somewhat heavier (by about 500 lbs.) than the 15-h.p. model, and it might at first be supposed—since the cylinders are no larger—

that it would cease to be as fast or as economical in water and in fuel as the earlier vehicle. It is useful, however, to remember that even on the 10-h.p. car, which was the predecessor of the 15-h.p. model, the same-

sized engine was employed, and everyone is now aware of the great superiority of the latter over the former in all respects. Similarly, we understand—though we have not as yet had an opportunity of witnessing it personally—the 18-h.p. car can easily "leave" the 15-h.p. on the road or up steep hills, while its greater length has proved to be anything but a drawback in respect of "manœuvrability."

The 18-h.p. "White" Steam Car, fitted with an American Limousine body.

It must not be supposed that there are but few very real and very far-reaching improvements in the chassis, for such is anything but the case. The truth is that they are numerous, and we understand that their combined effect is most remarkable. Each alone, however, would but appear trivial if merely described individually in this article, and we therefore postpone any full treatment of such constructional details until we have made ourselves thoroughly acquainted with their merits in actual practice on the road.

The actual system remains unchanged, and all the good points of the 15-h.p. car—the double feed-water pump, the free engine, the steadying fly-wheel, the fan-cooled radiator, and the "emergency" alternative-ratio gear—are retained on this larger vehicle. Neither is there any important modification in the steam system itself, the essential features of which are the specially-constructed "flash" generator, the automatic fuel and water devices, controlled by temperature and pressure respectively, the double-acting compound engine, with its ball-bearings, and the constantly running feed-pumps.

From what has already been said, it will have been gathered that this most successful type of steam car has again undergone considerable improvement, and that there is every probability of its becoming even more generally known and appreciated than it has been hitherto. Steam cars doubtless have been somewhat "under a cloud" since those of the light American type ceased to find a market, but the makers of the "White" have always succeeded in preventing steam cars, as an entire class, from being relegated to past history, and this has been a task that could only have been performed by those building and supplying an exceptionally and consistently good vehicle. The 1906 model will certainly have an even more marked an effect in this direction.

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In order to accommodate the additional staff required to deal with the evidence which is in preparation for the Royal Commission on Motor Traffic, premises have been

taken by the Joint Committee of the Automobile Club and Motor Union in Albemarle House, at the corner of Albemarle Street and Piccadilly.

REPAIRING A PUNCTURE—A MODERN METHOD.

(Continued)

The Process.

FOR the purpose of illustrating a typical case, we have taken as an object for repair, a tyre which has an oval-shaped hole in it measuring about half an inch wide and three-quarters of an inch long (Fig. 4). Alongside it is the same tyre after repair, while Figs. 5 and 6 show views of the repair from the side and from behind respectively. In order to make a neat mend, it is necessary to bevel the edges of the hole so that the compound may obtain a firm hold and yet not make a clumsy patch. This bevelling is most easily done with a

the actual repair may be commenced, but there is one thing to do first—place a piece of paper on the other side of the hole (Fig. 10). This little point is quite likely to be forgotten until too late, but it is not likely to be omitted more than once if the compound sticks to the opposite wall of the tyre. The method of applying



Fig. 6.—A view of the repair from the inside of the tyre, showing how the compound fills the hole. The somewhat peculiar cracked appearance of the repair in this view is due to the adhesion of the paper which had to be inserted in the tyre to prevent the compound sticking to the opposite wall of the tyre.

the compound is shown in Fig. 11, the strip being pressed firmly on to the tyre and worked round so as to gradually diminish the size of the hole, until it is finally filled up altogether. The amount of compound pressed into position in this way should only be just sufficient to

Fig. 4.—The damaged tyre before and after repair.

pair of scissors (Fig. 7), as anyone who is acquainted with the difficulties of cutting rubber with a knife will readily understand. After the edges have been bevelled their surface should be well rasped (Fig. 8) until, for some distance all round the hole, there is a perfectly clean surface. The next operation (Fig. 9) is to prepare this surface with cement in exactly the same way as a patch is prepared with rubber solution, and while the cement is drying to a "tacky" condition, some strips of compound should be cut off and made ready for use.

Fig. 5.—Side view of the repair, showing that it can be made flush with the original rubber.

The compound is provided in a roll about three or four inches wide, and either that which is yellow-brown or that which is red in colour may be used, the only difference being that one is drugged with sulphur and the other with antimony. Strips of the compound about $\frac{1}{4}$ -inch wide must be cut from the roll, and only one or two such strips will be necessary for repairing a hole of the size mentioned. To render the strips somewhat more plastic they should be placed on the top of the vulcaniser—which by this time will have become heated—and warmed for a few seconds. When the damaged tyre is "tacky," and the compound is also ready for use,

Fig. 7.—REPAIRING A TYRE.—First bevel the edges of the hole with a pair of scissors.

come flush with the tyre at the top edge of the bevel, care being taken to see that the edges of the adjacent rings of compound always overlap.

The repair at this early stage will present a somewhat rough appearance, and before proceeding with the vul-

Fig. 8.—Then well rasp the bevelled surface.

canisation it is necessary to smooth down the surface, and "caulk" the edges of the compound. This is best done with a penknife, as shown in Fig. 12. If after this is done the compound still bulges above the level of the tyre it should be pared down flush with a knife.

(To be concluded.)

THE MANOGRAPH—ITS UTILITY AND CONSTRUCTION.—PART III.

THE pin, C^9 , is caused to move backwards and forwards, against the action of the spring, C^{10} , by the pivoted lever, C^8 , upon one end of which it rests, and this lever, C^8 , is connected by a short link (as seen in Figs. 2 and 3) with a crank-pin that projects from the spur-wheel, C^7 . The crank-pin has a very short throw, being only slightly eccentric to the wheel, C^7 , and the length of the connecting-link bears the same proportion to the throw of the crank-pin that the length of an ordinary connecting-rod does to the throw of the crank-shaft on an average petrol engine. The result is that if the wheel, C^7 , revolves in unison with the crank-shaft of the engine, the pin, C^9 , is compelled to move backwards and forwards

in synchronism with the engine-piston, thus causing the beam of light to follow suit on the screen.

The spur-wheel, C^7 , is driven by the flexible-shaft, C , but is not directly connected with it, since it would be difficult—even when the engines were at rest—to attach the flexible shaft to the crank-shaft in precisely the correct position. It is obviously necessary that the beam of light should arrive at each end of its range of travel across the screen, at exactly the same instants that the piston completes its inward and outward strokes, and it is also very convenient to be able to connect and disconnect the flexible shaft while the engine is running. The spur-wheel, C^7 , is therefore mounted centrally in a metal

The thick horizontal line on the left represents the piston-travel when a very long connecting-rod is employed, and the corresponding thick line to the right of it represents the piston-travel with a short connecting-rod, while, on the extreme right, the circle denotes the path of the crank-pin about the axis of the crank-shaft. The former horizontal line is divided into eight equal parts by the thick vertical lines above it, so that the distance between each of these represents one-eighth of the travel of the piston. Precisely corresponding, but thinner vertical lines, are drawn beneath this horizontal line, and also above and beneath the other horizontal line, but alongside these thin lines will be seen the thick vertical lines, $1a, 2a, \&c., 1b, 2b, \&c.,$ and $1c, 2c, \&c.$ The positions of the intermediate thick lines, just referred to, show the extent to which the obliquity of the longer connecting-rod, and the difference of obliquity between it and the shorter rod might affect the indicator diagram.

Superimposed upon the vertical lines in each case, is a diagram such as would be obtained from a petrol engine when running with the throttle-valve wide open, and with the ignition fully retarded. The variations in shape of these four diagrams demonstrate the effect of connecting-rod obliquity in each of the cases represented, for otherwise they would be identical. The first diagram is assumed to be correctly "drawn," but the one immediately beneath it (which is superimposed above the lines, $1a, 2a, \&c.$) is such as would be produced if the diagram were thrown on the screen of the manograph the wrong way round. In this case, the changes in pressure represented by it occur at points during the stroke that can be correctly determined by means of the unequally-spaced

thick lines, but the diagram would be extremely misleading if read in the usual way in the light of the equally-spaced lines $1, 2, 3, \&c.$ The cause for this is easy to see from the drawing. It shows that the piston arrives at mid-stroke (4) before the crank-pin completes a quarter revolution, that the maximum piston-speed is reached slightly after it has travelled half-way, and that the piston-speed varies more rapidly during the second portion of its stroke.

In the upper diagram on the right, a similar kind of distortion has been brought about by the difference in length of the two connecting-rods, and this diagram, therefore, demonstrates our second point. Only by reading it in relationship to the unequally-spaced thick lines ($1b, 2b, \&c.$)—and not in the usual way by the equally-spaced thin lines—could correct deductions be made from it. In this case also, our drawing shows the reason for this distortion.

The remaining diagram (the lower one to the right) shows the extent to which distortion is produced from both the causes mentioned above in combination with one another, and here it will be seen how extremely easy it is for misleading deductions to be made from improperly taken records. At first sight, for instance, it might well be assumed that ignition occurred when the piston had traversed three-sixteenths of its forward stroke, for this is what is shown by ordinary measurement, the rise in pressure occurring about midway between the lines 1 and 2. As a matter of fact, however, on closer inspection, it will be seen that ignition occurred slightly after the line, $2c$, or, in other words, that the rise in pressure took place considerably later—roughly speaking when the piston had completed one-fourth of its stroke.

drum, C⁴, which can be rotated, about its axis, inside the casting, A¹, and it is driven by another equal-sized spur-wheel, C⁵, that is fitted eccentrically to the drum, C⁴. The spindle, C⁶, carrying the wheel, C⁵, passes through the drum, C⁴, and it is this spindle to which the flexible shaft is connected. For convenience, there is a detachable plate, C⁷, that forms a part of the shaft-coupling, C⁸, the stationary external casting on that shaft being secured to it by a union nut; the "live" shaft engages, jaw-clutch fashion, with the spindle, C⁶. At any time, the drum, C⁴ can be rotated by hand, this being provided for by the adjustment screw, C¹², which has a worm formed on it to mesh with corresponding teeth formed around the periphery of the drum. It is immaterial, therefore, how the flexible shaft is initially coupled up to the crankshaft, for the manograph can subsequently be brought into synchronism with the engine by operating the adjustment screw, C¹². In practice, it is easy to do this accurately when the instrument is in use, by retarding the ignition and watching the shape of the diagram. The completion of the compression stroke can then be recognised on the screen, and if it does not occur at the right place, it can be made to do so.

Various diaphragms, B², are obtainable from the manufacturers, to suit different pressures and engines of different kinds, and, with each of these, are supplied data giving the relationship between vertical deflections of the beam of light and pressures on the diaphragm. These data enable any diagrams that are obtained to be re-drawn accurately for the purposes of calculating indicated horsepower, when required, but are primarily intended to permit the records to be measured for pressure.

In concluding this article, there are one or two further points that may to advantage be mentioned briefly, as being likely to prove useful to users of the manograph. A glance at the diagrammatic sketches which we give in Fig. 5 will show that a more accurate diagram will be

obtained if the instrument is set to give the high part of the diagram on the left side, instead of the right, of the ground-glass screen. This is so because it is only under these circumstances that the obliquity of the connecting-rod in the engine is compensated for by that of the connecting-link in the manograph. Otherwise, there would be the same kind of slight distortion that results if the relative length of connecting-link to crank-throw does not correspond with the relative length of connecting-rod to crank-throw in the engine; Fig. 5 also demonstrates this point. The entire instrument which is very carefully constructed and is thoroughly well finished, has adjustments provided by which the mirror can be properly illuminated at its centre, and by which the beam of light can be thrown upon the correct spot on the ground glass; a certain amount of care is therefore required in the first place to see that everything is "set" as it should be, or otherwise inferior results can only be expected. It is, in addition, necessary to remove and clean the diaphragm after it has been used, for otherwise the products of combustion, and the condensed gases that form as moisture on its surface, are liable to cause oxidation to occur.

Table of Reference Letters for the Manograph Illustrations.

A	Wooden case.	C ⁴	Circular "timing" drum.
A ¹	Brass casting containing moving parts.	C ⁵	Shaft driven by C.
A ²	Lamp fitting.	C ⁶	Spur-wheel on C ⁴ .
A ³	Ground-glass screen.	C ⁷	Spur-wheel, driven by C ⁵ .
B	Tube leading from combustion-chamber.	C ⁸	Oscillating lever.
B ¹	Screw-plug, holding diaphragm in place.	C ⁹	Plunger-pin operated by C ⁸ .
B ²	Diaphragm.	C ¹⁰	Spring acting against C ⁹ .
B ³	Plunger-pin for same.	C ¹¹	Mirror-arm operated by C ⁹ .
B ⁴	Spring acting against B ² .	C ¹²	Adjustment worm for "timing" drum, C ⁴ .
B ⁵	Pressure-operated mirror-arm.	D	Mirror.
C	Flexible shaft.	D ¹	Fulcrum centre.
C ¹	Engine-coupling on same.	D ²	Fixed fulcrum-pin.
C ²	Coupling to instrument.	E	Acetylene gas pipe.
C ³	Detachable plate for C ² .	F	Chimney.
		F ¹	Prism.

Tyre Deterioration.—Mr. S. F. Edge, who is ever on the alert to discover popular errors in motor car management, writes pointing out the very great variation in the lives of similar tyres on similar vehicles belonging to different owners, and he has come to the conclusion that of the numerous methods of improper usage, the most frequent is incorrect inflation. Load on each wheel and size of tyres naturally determine the actual figure which absolutely meets each particular case, but Mr. Edge, after personal investigation, and as the result of communicating with various tyre companies, gives as the most suitable pressure for tyres on "large cars" the following figures. Certain it is that if an adequate pressure is not maintained any tyre suffers from the excessive bending of the rubber and fabric (molecular action in the cover itself) which generates considerable heat, so that the walls of the tyre crack or even burst.

Proper pressures for tyres on large cars:—

Make.	Front wheel.	Back wheel.
Dunlop	... 70 lbs. sq. in.	... 85 to 90 lbs. sq. in.
Michelin	... 70 to 80 lbs. sq. in....	70 to 80 lbs. sq. in.
Continental	... 75 lbs. sq. in.	... 80 lbs. sq. in.
Palmer	... 75 to 80 lbs. sq. in....	95 to 100 lbs. sq. in.

The Lady, the Lease, and the Motor 'Bus.—One cannot help a smile at the expense of the indignant lady who, residing in the aristocratic purlieus of Portman Square, upon her return from a "health-giving holiday"

has written to the papers in a state of exasperation, that after paying £4,000 for the lease of her house, and £2,000 more in fitting it up, it is being rendered unpleasant for her by the fact that objectionable enterprising motor 'bus companies have, during her absence, started running motor 'buses past her door, up to even as late an hour as one o'clock in the morning. The lady is very indignant, not only with the 'buses, but with their customers—"night wanderers" she terms them—who, she observes, if they had any sense, would retire to rest much earlier. No doubt people who pay £4,000 for leases and £2,000 for fitting up their houses, can usually afford to retire to rest exactly when they please, but we trust we may point out, without incurring the suspicion of vulgarity, that there are many people in the city of London whose sad fate it is to be compelled to work till past midnight, and to them the late-running motor 'buses are proving a godsend. The attitude of the lady of Portman Square reminds us forcibly of Marie Antoinette, who, when it was explained to her that the "common people" were starving because they had not any bread, was very sympathetic, but enquired wherefore the unfortunates did not regale themselves with cake.

APROPOS of the various methods of road treatment to which we refer editorially this week, it is satisfactory to learn that the Cuckfield Rural District Council are making up two miles of their roads with tarred granite chippings.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

MOTORS AND FIRE LOSSES.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—During the past few days a motor 'bus, costing about £1,000, was destroyed at Ham by the petrol catching fire, a motor car at Blackfriars set ablaze and was burnt to scrap, a motor garage at Aberdeen has been burnt down, fifteen cars being destroyed, at the F.I.A.T. garage at Long Acre cars have similarly been destroyed, and only a few months before that Long Acre itself was a volcano of fire through the inflammable materials of which motor cars and garages are built. If Mr. Yerkes finds it possible to build the bodies of the underground railway carriages of materials which cannot be set ablaze, I do not see why the directors responsible for motor omnibuses, &c., should not at least have as much regard as Mr. Yerkes. That an accident to the petrol or the electric working can make utterly worthless a thousand pounds worth of shareholders' property in a few minutes is a very serious matter for all having monetary interests in motor car and omnibus companies, and an obviously severe reflection on the foresight of those now directing these industries.

Yours faithfully,
ECONOMIST.

September 21.

RURAL DISTRICT COUNCILLORS, MOTORS, HOSPITALS AND LUNATICS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—It is to-day reported in a daily contemporary of yours that a member of the Croydon Rural District Council, in the course of discussion, observed that "motorists were raging and tearing all over the place and filling the hospitals and lunatic asylums." This councillor's opinion does not, I suppose, deeply interest the public, but it usefully illustrates the recklessness with which charges are brought against motorists by persons who allow their prejudice to get the better of their reason.

I have this morning made enquiry as to the number of patients under treatment for accidents caused by motors at the following great hospitals—St. George's, Guy's, St. Mary's, St. Thomas's, and the West London.

The sum of the beds available at these noble institutions is 1,998. The number of patients suffering from accidents caused by motors is two, one per thousand beds, and yet an official, speaking officially, has the temerity to assert that motorists are "filling" the hospitals.

I have not yet had time to obtain statistics from the lunatic asylums in reference either to motor victims or district councillors.

I am, your obedient servant,

W. J. BOSWORTH (Colonel),
Chairman, Automobile Association.

September 22nd.

TOURIST TROPHY RACE.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—It was, I believe, in the year 1901 that Mr. Claude Johnson asked me to put forward some suggestions, *re* a racing contest, whereby the speed of the cars would be kept within reasonable limits. I gave my opinion that in order to do this two things only were necessary, namely, to fix a limit on the fuel consumption, and secondly, to limit the cylinder capacity, or, rather, the piston displacement at, say, 1,000 revolutions per minute.

The question of weight limit should not, in my opinion, come into question. If a weight limit is specified, cars will be specially prepared for the event, and all kinds of make-shift appliances will be evolved in order to reduce weight. I take it that the Tourist Trophy event is primarily one to improve the touring cars, and if makers are faced with the weight limit, it naturally follows that modifications from standard models will be made, and the event simply becomes a speed contest, and is worthless as a real test of genuine touring cars.

It would be interesting to know if any car entered and run in the recent contest is exactly the same weight as similar powered cars supplied in the regular way of trade. Judging by the number of breakdowns, it is to be hoped that the cars were not the usual commercial ones, and that they were more or less racing machines.

Out of 42 starters only 18 cars completed the course, which is only 42 per cent. of the total number of starters. There is only one deduction to be made, and that is the cars were not suitable ones for the event, and there is no doubt that a very much larger proportion would have finished had there been no weight limit, or had the weight limit been a higher one.

It is evident, from the very valuable data which has been obtained by the recent contest, that more satisfactory regulations can be set out for future contests, and the value of making one of the rules a limitation of piston displacement should not be lost sight of. Looking at the results it will be found that the cars having motors with the greatest piston displacement are placed in the following positions:—

The cars with engines having the greatest piston displacement at 1,000 revolutions are placed first and fourth.

The car placed second is also second as regards piston displacement, while the third car and the tenth are the next highest in piston displacement.

This data is especially valuable, as the winning car had only a 2-cylinder motor and the greatest piston displacement. It is therefore probable that this motor was only run at a moderate number of revolutions per minute.

With these results before us, it should be easy to now fix upon the maximum displacement which may be considered a reasonable one for a touring car.

The argument against this will, of course, be the usual one that it does not limit the speed at which the motor can be run. For instance, one maker may, under normal conditions, run his motor at a 1,000 revolutions, while in the contest he may run it up to 1,200 or more. However, to guard against this there is a limitation of fuel consumption, as it is evident that whatever may have been the revolutions of the motors fitted to the cars above referred to, there is a very little margin over the fuel allowance. Had the engines of cars with a smaller piston displacement beaten those of larger displacement, it would have probably been evidence that the smaller engines were run at excessive speeds. However, this is not the case, and with the limitation as regards fuel consumption, it would therefore appear that no excessive motor speed is beneficial.

Another possible argument against the no-weight limit may be that it will encourage the development of freak machines. This difficulty may be met very easily by a regulation that all cars entered must be in every detail the standard commercial models, and that exactly similar machines must be shown to have been on the road for at least three months before the date of contest.

I also suggest that every car must, before being accepted, be driven for say 50 miles under observation to prove its capability of running on the fuel allowance.

I would also suggest that a separate class be constituted for 2-cylinder cars, or a special prize for the best performance of such cars, as I take it that one of the objects of the competition is to prove the capability of cheap and reliable cars, and, therefore, some encouragement ought to be given to a type of motor which this late contest has shown to be both economical and speedy, as we find that a 2-cylinder car takes the first place as regards speed, and another 2-cylinder car the first place as regards fuel consumption.

Yours truly,

September 25.

J. S. CRITCHLEY, M.I. Mech. E.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I am writing to ask if any of your correspondents can give me some information upon a subject which seems to me to be of considerable interest. Lately there has been a good deal of attention aroused by the Tourist Trophy Race in the Isle of Man.

About the same time the notice of the automobilist public was drawn to the fact that several new associations or unions of motorists had sprung up, if not actively hostile to, at all events by no means the friends of, the A.C.G.B.I. I may mention here that I am not a motorist myself, *i.e.*, I do not possess a motor car, nor can I drive one, but several members of my family are keen upon motoring, so I naturally take considerable interest in the automobile movement. Now by Rule 5 of the Tourist Trophy Rules, which I imagine were drawn up by the A.C.G.B.I., "The fuel to be used shall be provided by the club, and shall be petroleum spirit having a specific gravity of 0.695–0.705 at 60° F."

Now this rule absolutely restricted the Tourist Trophy Race to those cars which used petrol as a propellant agent. Is this because petrol cars are now the only make of cars to be considered? I would like to know why the Tourist Trophy Race was so restricted? Are there not makes of cars on the market which use paraffin and other things as propellant agents? The Motor Yacht Club admitted paraffin-driven, coal-driven, and producer-gas-driven boats to its trials. The coal-driven boats, I noticed, obtained the Gold Medal, each in its class. Why should not the Tourist Trophy have shown a like catholicity? Some time ago I noticed a gentleman writing somewhat strong, not to say indignant, letters to the motor car papers, denouncing the A.C.G.B.I., and saying that instead of being called the "Automobile Club" it ought to be called the "Petromobile Club." I fancy the gentleman had some interest in some make of car which did *not* use petrol as a fuel, hence the heat

of his indignation was all the greater! But may not his observation contain a grain of truth? Is the Automobile Club an association of manufacturers of one type of car, or is it really representative of the whole body of motorists? Is it not considerably to blame for the associations which have sprung up against it, owing to its being too

narrow-minded and prejudiced in the favour of one type of car? As a non-motorist and a looker-on, I appeal to you or to your correspondents to give me an explanation.

Yours faithfully,

Bracknell, Sept 24th.

"INQUIRING IGNORANCE."

TURIN TO DIEPPE UNDER TWENTY HOURS.

THE Fiat cars have established such a splendid reputation both for speed and reliability that no record which they may now make will come as a surprise to our readers. A telling example, however, of what the machines, as turned out by the company, can be relied upon to do with certainty, as soon as they are put together, perhaps counts for more than the winning of any pre-arranged race or reliability test for which special cars have been previously prepared and tuned up during weeks or months. These observations are suggested by a very fine performance of a 24-h.p. Fiat car, of which Mr. Miller and Mr. D'Arcy Baker took delivery direct from the works at Turin on the 19th of last month, and of which we have received from the *voyageurs* the following interesting particulars. Owing to exigencies of time the chassis had not been then even given the preliminary test run which the makers invariably subject their vehicles to before putting them into the hands of a purchaser. The car was simply put together, and Mr. Miller, with Mr. D'Arcy Baker and Commander and Mrs. de Satje started off forthwith for a trans-European tour upon it. They made a splendid run. The travellers selected the Mont Cenis route into France and scaled the tremendous road that goes over the mountain, not once being compelled to have recourse to the first speed, and taking the greater part of the road, the gradients of which are notorious, on the third. The car had left Turin at 2.40 in the afternoon, Susa was reached at 3.30 p.m., and the ascent of Mont Cenis commenced at 2 minutes to 4, the summit, 6,500 ft., being reached at a quarter to 5. From that point they had, of course, a long and winding run down, and Lanslebourg, the first French town over the frontier, was reached by 12 minutes past 5. After this the journey lay along the splendidly picturesque road through Modane to St. Jean de Maurienne, where the beauty of nature was to

some extent unpleasantly cancelled by the want of beauty of the road surface, which, however, gave the travellers more opportunity for enjoying the mountain views. After the latter place, however, the roads gradually improved, with the fine long stretches of 12 and 15 kilometres without a turn, characteristic of the grand "Chaussées" of France, where some very fast travelling indeed was made. In fact, on two occasions the car performed runs of 265 kilometres in a fraction over 5 hours, attaining on some stretches, where it was timed over short distances, a speed of 60 miles an hour. The first night was passed at Aix-les-Bains, and the second day's run terminated at Chalons—a departure from the original intention, which would have brought the car to Macon. The account given by travellers of the hotels at Chalons, at which place, apparently, they stopped on this occasion for the second time in their experience, are certainly calculated to make all motorists avoid that city in future. The journey was continued to Paris, and from Paris to Dieppe, with the same total—we might almost say phenomenal—absence of accident, considering the distances covered and the speeds attained. The times of the different stages of which the journey consisted were as follows:—

	kiloms.	h. m.
Turin to Aix-les-Bains	193	in 4 20
Aix-les-Bains to Chalons (sur Soane) ..	265	" 5 1
Chalons to Paris	354	" 6 39
Paris to Dieppe	168	" 3 10
.....	980	" 19 10

Mr. Miller speaks most enthusiastically of the Michelin tyres with which the car was fitted. They gave absolutely no trouble the whole of the journey, though several very bad stretches of road were encountered, and on reaching Dieppe they scarcely showed any appreciable wear.

To Sound or Not to Sound the Horn.—If county court judges are generally going to follow the example of His Honour Hans Hamilton of Clitheroe, motorists will find themselves between the devil and the deep sea, though which is the devil and which the deep sea we leave to our readers to decide. On a recent occasion a motorist duly blew his horn on approaching a horse-drawn conveyance, whereupon the horses ran away. There was a smash, and both of them were injured, one of them subsequently dying. For thus sounding his horn Mr. Arthur Thompson, the owner of a motor car, was ordered to pay damages amounting to £55 11s. 2d. Now the law prescribes that when a motorist is approaching a horse-drawn vehicle, and upon other occasions, "he shall give audible warning of his approach by sounding his horn," and if he fails to do this he can be fined up to £20. What, therefore, is the unhappy motorist to do? To speak seriously, the decision is such a preposterous one, and will have such far-reaching consequences if allowed to count as a precedent, that we sincerely trust that an appeal will be lodged against it.

The Enquiring Mind.—We referred some time ago to the sad case of the inquisitive individual who went out to

look for a leak of petrol with a lighted match. There appear to be some equally inquisitive and, if possible, less intelligent individuals inhabiting the port of Newhaven. The railway companies, not unreasonably, insist that whenever a motor car is taken on board the petrol should be emptied out of its tank. A car which was to be shipped from Newhaven to Dieppe complied with the requirements and ejected its petrol on to the surface of the River Ouse in the port in question. Some inexperienced youths who were rowing by in a boat thought they would like to see whether the petrol would burn on the surface of the water, and accordingly applied a match to make the experiment. It was supremely successful. Instantly their boat was enveloped in flames which rose to a considerable height in the air, setting fire to the boat, and the experimenter's clothing, who leaped into the water to cool himself. When rescued he was found to be severely burned, though by poetical justice, which is not always in evidence, the other occupants of the boat escaped unhurt. We trust this taste of the effects of the old "Greek fire," whose leading characteristic was that it burned on the surface of water, will make the Newhaven experimenter more cautious in future.

THE TOURIST TROPHY RACE QUESTION.

So much greater, and so much more general, is the interest that is now taken in the Tourist Trophy type of race—the first contest of the kind having proved so pre-eminently successful—that many of our readers may find it useful to have their attention drawn to the numerous special articles, dealing with this important subject, that have appeared in our pages. The following summary will be found to constitute a handy index to the nature of these previous articles, the continuation of which we have again been compelled to hold over to another week:—

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RACES, RECORDS, AND TRIALS.

Henry Edmund's Hill-Climbing Challenge Trophy Race.—The entries and order of starting for this race, arranged to take place at Blackdown Park, Fernhurst, Sussex, in the private grounds of Mr. F. S. Philipson Stow, on Wednesday of this week, were as below. Car No. 1, Mr. E. Campbell Muir, holder of Trophy, decided not to defend:—

No.	Entrant and Car.	Driver.
2	F. A. Potts, 30-h.p. Daimler	C. Grinham.
3	E. Gascoine, 12-h.p. Wilson-Pilcher	E. Gascoine.
4	Chas. Sangster, 40-h.p. Ariel-Simplex	C. Sangster.
5	Harvey du Cros, jun., 30-h.p. Ariel-Simplex	H. du Cros, jun.
6	A. Huntly Walker, 70-h.p. Darracq	A. Huntly Walker.
7	S. N. Bankart, 24-h.p. Rochet-Schneider	Morgan Donne.
8	F. R. S. Bircham, 24-36-h.p. Itala	F. R. S. Bircham.

The length of the hill is 1,650 yards, and includes a grade of 1 in 4½ for nearly 400 feet at a severe bend in the road, and therefore provides a very hard test for a car even of high power.

Manchester Hill Climb.—The Manchester Motor Club on Saturday last held a hill-climbing contest on the Snake Hill, near Glossop, about 14 miles from Manchester, near to the Derbyshire borders. The measured stretch on the hill was 3 miles, in which the average gradient was about 1 in 14, with at points 1 in 8 to 1 in 6. Entries for 35 cars were received, of which 31 competed, in the 5 classes. The starting-point was at the Royal Oak Inn, and the chief results were as follows:—

Class 1.—(1) Mr. W. McNeil (7-8-h.p. Cottureau). (2) F. Sturgess (6-h.p. De Dion). Won by 1m. 37½s.

Class 2.—(1) J. Richardson (8-10-h.p. Coventry Humber). (2) A. Huntley Walker (10-h.p. Darracq). Won by 13½s.

Class 3.—(1) A. Huntley Walker (15-h.p. Darracq). (2) C. H. Cooper (16-20-h.p. Humber). (3) W. Dyson (15-h.p. Darracq). Won by 1m. 54s.

Class 4.—(1) A. Huntley Walker (15-h.p. Darracq). (2) 16-20-h.p. Argyll. Won by several minutes, the Argyll carburettor having got choked up.

Class 5.—A. H. Walker "walkover," 60-h.p. Mercedes.

Impromptu Hill Climb.—Subsequent to the motor cycle hill climb of the Sheffield A.C. at Grindleford last Saturday, an impromptu handicap test for cars was held on the hill, when the following were the times accomplished:—

C. D. Leng, 16-24-h.p. Fiat (4 cyl.)	...	7	4
J. H. Pickford, 24-h.p. Germain (4 cyl.)	...	7	27
J. H. Hall, 12-h.p. Gladiator (4 cyl.)	...	8	29
T. J. Fryer, 10-h.p. Hallamshire (2 cyl.)	...	8	50
Dr. Fletcher, 6-h.p. Wolseley (1 cyl.)	...	11	25

The handicap results have yet to be worked out.

Dewar Non-Stop Challenge Cup.—On Monday last Mr. Rowland Morewood, secretary of Mors, Limited, started on a 14-h.p. Mors car to compete for this challenge cup over a distance of 2,000 miles. The trophy was presented by Sir Thomas Dewar, with the provision that it should be run for by touring cars covering a distance of 2,000 miles in the quickest time, keeping within

the legal speed limit, and without stopping the engine. The car for which the trophy is at present held is a Clement-Talbot, the time occupied over the distance being $124\frac{1}{2}$ hours. The route to be taken by Mr. Morewood was the same as last year, from London to Perth and back twice, by the Great North Road *via* Grantham, Doncaster, York, Durham, Gateshead, Newcastle, Alnwick, Berwick, Edinburgh, Dunbar, Falkirk, and Stirling. The final run was to be from London to Portsmouth and back, making a total distance of 2,019 miles. At Perth Mr. Morewood was invited to lunch with the Lord Provost and Council and Sir Thomas Dewar. Unfortunately a collision with a cart 19 miles from Edinburgh terminated Mr. Morewood's present attempt.

Errata.—We regret that our special table, giving in a concise form the full results of the Tourist Trophy Race, contained incorrect times for the second lap of the winning Arrol-Johnston car (No. 53), and for the fourth lap of the Vinot car (No. 52). The correct times were: For the second lap of the Arrol-Johnston car (No. 53), 1h. 32m. $21\frac{1}{2}$ s. = 33.8 m.p.h.; and for the fourth lap of the Vinot car (No. 52), 1h. 32m. $38\frac{1}{2}$ s. The maximum speed for any lap was, therefore, 34.5 m.p.h.

THE Ryknield Engine Company, whose All-British car made, we believe, a non-stop run throughout the Tourist Trophy Race, write pointing out that the price given in our table on page 1166 of our last issue is for the complete car and not for the chassis, which is sold separately, at £385.

The *Manx Sun*, which gave its unstinted support to the Tourist Trophy Race throughout, actually had a special

edition printed and in circulation on the evening of the race, containing an account of the proceedings, and a full table of results giving the times for each competitor.

Vanderbilt Cup American Eliminating Trials.—Last Saturday, the 23rd instant, the American entrants for the Vanderbilt Race, which takes place in Long Island on October 14th, ran over the Cup course for the purpose of selecting the representative team of five for America. The course, a map of which we have already published, was the same as the Cup course, except that the race in this case was only four times round, making a total of $113\frac{1}{2}$ miles, instead of the ten times as originally planned, giving a total of 283 miles. This reduction was mainly in order not to inconvenience the resident population in the district by having two long races so close together. The start was from Mineola. In the ballot for order of starting the 50 h.p. Haynes car drew first place, there being twelve in all entered. Of these ten actually started in the following order, the respective official numbers being given:—

	Driver?
1. E. Haynes's 50-h.p. Haynes ...	Frank Nutt.
2. A. E. Pope's 60-h.p. Pope Toledo	Bert Dingley.
3. L. M. Palmer's 40-h.p. Matheson	R. Mongini.
4. R. H. White's 40-h.p. White ...	W. C. White.
5. Dr. Thomas's 90-h.p. Locomobile	Joseph Tracy.
6. J. L. Breese's 60-h.p. Christie ...	Christie.
7. E. D. Shurmer's 40-h.p. Royal Tourist	R. Jardine.
8. H. S. Houpt's 60-h.p. Thomas...	M. Roberts.
9. E. H. Green's 60-h.p. Franklin...	W. F. Winchester.
12. A. A. Pope's 90-h.p. Pope Toledo	Herbert Lytle.

The non-starters were:—No. 10, Matheson's 40-h.p. ~~Matheson~~ to be driven by Tom Cooper, retired, owing

MONT VENTOUX HILL-CLIMB.—As we announced last week, Cagno, on a Fiat, was the winner of this lengthy hill-climb in $19\frac{1}{2}$ minutes. Our photograph shows Cagno finishing towards the top. This picture has an increased interest from the fact that it was one of the last photographic plates exposed by M. Rol, the well-known member of the staff of "Les Sports," who was subsequently, as we announced last week, killed during his descent on Collomb's car.

to the radiator being broken during the night, and G. A. Weidly's 60-h.p. Premier, which was to be steered by Fisher, but was not in place in time to start.

The cars were got off expeditiously and the first starters were soon round the circuit entering upon their second lap. During the first round Christie, who had displaced his mechanic Owen, and personally drove Breese's Christie car, was travelling especially fast at the commencement, but when taking an acute turning at an ill-judged speed the back of his car swung round and crashed against a telegraph post, damaging his right back wheel severely. He, however, remedied the mischief and pluckily re-started, but the race was hopeless under the circumstances and he retired in his second round. Shurmer's car had a remarkable experience and escape. At one of the many dangerous corners where cinders and sand had been spread to prevent skidding, the car had a bad slide and turned turtle. Fortunately both driver and mechanic escaped without injury and the machine with the assistance of the bystanders was righted and the steering gear which had been damaged repaired, the car within a few minutes of the occurrence being again on its way round the course, this car actually making the second best time of the day. Lytle on his 6-cylinder Toledo was getting over the ground splendidly, but unfortunately had to abandon the contest owing to a fracture in his frame. Walter White's 40-h.p. steamer was eliminated through trouble with his differential. At the finish of the fourth round the 5 cars which qualified for taking part in the race on October 14th were:—

1. Dr. Thomas's Locomobile (No. 5), 2h. 1m. 49s.
2. E. D. Shurmer's Royal Tourist (No. 7), 2h. 19m. 8s.
3. E. Haynes' 50-h.p. Haynes (No. 1), 2h. 23m. 32s.
4. H. S. Houpt's 60-h.p. Thomas (No. 8), 2h. 29m. 40s.
5. A. L. Pope's 60-h.p. Pope Toledo (No. 2), 2h. 50s.

In spite of these results, however, according to Reuter's telegram, the Cup Commission has rejected three of the qualified cars, the following being selected to compete in the Cup race: A. L. Pope's Pope Toledo, Dr. Thomas' Locomobile, A. L. Pope's Pope Toledo, J. L. Breese's Christie, and R. H. White's White Steamer.

From a later telegram we learn the committee have re-considered their first decision, and have named the original cars which qualified (as given above) to run in the race, but they have authorised Lytle to replace Dingley on the Pope Toledo, as they state the trial was one of cars, and not necessarily of drivers.

The race has given rise in several quarters in America to the question as to the use and advisability of motor racing of this character. Evidently the same feeling is

growing in the United States as in England, that pure speed contests with speed machines are rather to be deprecated than encouraged.

The Future of the Gordon-Bennett Cup.—In regard to the allotment of the Gordon-Bennett Cup to a big tourist car competition, considerable misapprehension appears to exist in respect to its being allocated for that purpose by Mr. Gordon-Bennett. As we announced last week, the whole question will be submitted to the representatives of the various clubs interested before anything will be decided, and Mr. Gordon-Bennett, in an interview, has confirmed this statement. The Marquis De Dion, who is particularly in favour of an extensive endurance competition, suggests that in the event of the Cup being allotted to a contest of this character, entries should be reserved entirely to constructors, that the distance should be 5,000 kiloms. at least, that each competing car shall be minutely stamped in all its parts, and that every repair or replacement shall be strictly noted—in fact, that it should be run practically on the stricter lines adopted in Great Britain. We would suggest, in addition to the Marquis's proposals, that, in order to retain the international character of the competition and to continue the main object for which the trophy was created, each car should be entered as before through the representative club of its country, and that the whole of the parts should, in similar manner to the rules regulating the Gordon-Bennett trophy for racing vehicles, be entirely made in the country of origin.

A Goggle Competition.—A competition of protectors for the eyes when motoring, as announced some time ago, is shortly to be adjudicated upon in France. Originally started by M. Cormier, about 2,000 francs have been offered as prize money. Eleven entries have been made for goggles, and M. Huillier has entered a device for fixing in front of a car. The entries of goggles have been made by MM. André Fériel, Eugène Jeantel, Paul Morel, E. Peyrot, fils., A. Miret et Lecluc, A. Drouet, Dr. Letourbe, M. Meyan, Mirovitch, Emile Dumoulin, and Lanjeais.

For the Annual Hill Climbs on Chateau Thierry and Gaillon (which are to be held this year on October 1st and 15th respectively) a category for tricars has been instituted, amongst this class of vehicle being two Contal tricars in the $\frac{1}{2}$ litre class. A class for commercial vehicles is also a new feature.

Who Really Use Our Roads?—A recent census has been taken by our contemporary the *Car* of the number of vehicles proceeding along the main roads out of London. The census was taken on different days, generally from 10 in the morning till about 6 in the evening, on the following roads, when there was no reason for any abnormal traffic, the results being given annexed thereto:—

	Cycles and automobiles.	Horse- drawn vehicles.
Great North Road (a mile from Barnet) ...	151	131
Bath Road (4 miles from Hounslow) ...	191	95
Brighton Road (2 miles from Merstham) ...	257	123
Exeter Road (2 miles from Staines) ...	226	108
Portsmouth Road ($1\frac{1}{2}$ miles from Esher) ...	285	120

It will be seen, therefore, that while the total of self-propelled traffic on all these roads amounted to 1,110, there were only 577 horse-drawn conveyances.

It is reported in the *Musical News* that the celebrated Sousa has written a new motor march in which are to be introduced "motor-horn effects." Whether they will be euphonic or not may be a question, but one of the most generally recognised "motor-horn effects" is a sudden concentration of police attention on the spot where they are heard, so if the new march is brought to this country, we may find that the concert room in which it is "given" will at once form a centre of police interest. No doubt Mr. Cathcart Wason will ask a question about the matter as soon as Parliament reassembles.

COMPARATIVE FUEL-CONSUMPTION ON THE OXFORD ROAD.

Mr. Percy Northey, with his mechanic, Durlacher, on the 20-h.p. Rolls-Royce car, that secured second place in the Tourist Trophy Race, and was one of the cars tested on the Oxford Road.

A Daybreak Test on Tourist Trophy Lines.—Very interesting and instructive in their way were some fuel-consumption tests which we assisted in conducting during the early hours of Friday morning (Sept. 22nd), on the "average road" quoted by the A.C.G.B.I. in their Tourist Trophy Regulations for this year's race—the orthodox road from London to Oxford. The actual cars used for this purpose were the two Rolls-Royce vehicles that took part in the great race in the Isle of Man on the 14th inst., when car No. 1, driven by the Hon. C. S. Rolls, was unlucky enough to be compelled to retire with a broken gear-wheel, but car No. 22, driven by Mr. Percy Northey secured second place with the remarkably high average speed of 33.6 miles per hour, and a mean fuel-consumption of only 24.8 miles per gallon.

On the present occasion, car No. 1 was again driven by Mr. Rolls, but car No. 22, which, it will be remembered, has slightly smaller cylinders (10 per cent. less piston area) and is geared about 12 per cent. lower, was driven by Mr. Claude Johnson. The objects of the tests were numerous, but they may be said to have been principally directed towards obtaining some idea of the relative T.T. capabilities of the two R.R. cars, and of instituting a rough comparison between the "average road," that has for some months served as a British standard unit to manufacturers, and the Manx racecourse.

Both cars—the 1906 type of Rolls-Royce light 20-h.p. vehicle—were running with their customary smoothness, quietness and freedom from all unnecessary friction throughout the transmission mechanism, but for obvious reasons it was necessary that the speed should be lower than in the Isle of Man. This in itself might be expected to favour fuel economy, and would indeed have done so were not its effect much more than counterbalanced by the exigencies of the traffic encountered on the route. Two unavoidable influences, in fact,

had the effect of tending to render the tests somewhat misleading, and it is therefore necessary to point out most clearly that the fuel consumption was largely in excess of what it would have been if a clear road could have been maintained, and if the entire route from London to Oxford had been available for the purpose. As it happened, frequent applications of the brakes and a number of stoppings and restartings were found imperative, while only a portion of the route could be utilised, and that portion included all the hilly country.

The start was made from the 10th milestone out of London, the road was for the most part dry and very dusty, and the run was made to a point half a mile beyond the 52nd milestone—a distance of 42½ miles. Each car carried two passengers, in addition to the driver, and an equivalent weight was carried to represent a fourth person. Prior to the start, the level of the petrol in both tanks was carefully noted, and subsequently—both after the outward journey, and again when the return trip was completed—they were refilled to precisely the same level in accurately measured doses. The amount of fuel used, and its equivalent value expressed in miles per gallon, is shown in the following table:—

	Car No. 1.		Car No. 22.	
	gals.	miles per gal.	gals.	miles per gal.
Outward journey (42½m.) ...	1.72	24.7	1.69	25.1
Return journey (42½m.) ...	1.935	22.0	1.72	24.7
Total trip (85m.) ...	3.655	23.3	3.41	24.9

It is significant to notice that both vehicles consumed more fuel during the return than during the outward journey, this being chiefly due to the increased traffic on the roads during the later hour of the morning.

MOTOR CYCLING.

The Auto Cycle Club and Permits.—Dealing with the competition held by the Motor Cycling Club on 25th August, for which no permit had been obtained from the Auto Cycle Club, the Committee of the A.C.C. have passed the following resolution:—

"That the Motor Cycling Club, having committed a breach of the rules of the Auto Cycle Club by holding on the 26th August, 1905, an open meeting without a permit from the Auto Cycle Club, the Motor Cycling Club be and is hereby suspended for a period of twelve months from the 18th September, 1905."

It has also been resolved as follows:—

"That Mr. J. Van Hooydonk, having committed a breach of the rules of the Auto Cycle Club by taking part on the 26th August, 1905, in an open competition which was not held under the rules of the Auto Cycle Club, be and is hereby struck off the register of the Auto Cycle Club, and his licence is hereby suspended for the period of one year from the 18th September, 1905."

The Committee of the A.C.C. further announce that Messrs. A. Candler, C. W. Brown, R. G. Booth, E. March, and Chester Fox have each of them been guilty of a breach of the rules of the Auto Cycle Club by taking part on the 26th August, 1905, in this competition, and notice of the resolution to this effect has been sent to the Licensing Registrar.

These resolutions refer to the matter which has been freely discussed recently in the columns of the Press in connection with the claim by the Auto Cycle Club to license all motor cycle meetings and motor cycle riders—an authority which the Motor Cycling Club and its members dispute.

THE Annual Dinner of the Auto Cycle Club will be held in the first week in January, when it is hoped the Hon. Arthur Stanley, the President of the club, will occupy the chair.

Auto-Cycle Club Penalty Run.—Remarkable success attended this run on Saturday last, which was confined to private members of the Club and its affiliated Clubs, the start taking place from the Castle Hotel, Woodford. We gave last week particulars of the penalties incurred, and also of the route from Woodford, to Littlebury and back, a distance of 68 miles. Out of 65 entries 57 actually competed, and no less than 32 made non-stop runs. In addition four clubs sent teams to compete for the special prize offered for Club Teams. The road from end to end was very carefully marshalled, so that although each competitor was required to report every stop which might occur, the likelihood of any stop being forgotten was in a measure provided against by the number of controllers who were scattered along the road. The whole of the competitors had been dispatched before 3 o'clock, and the first arrivals back were timed for soon after six, the latest time for classing being 8 o'clock. Very great assistance was given by the Essex Beaumont Motor Club, and the judges were Messrs. Robert Todd and G. F. Sharpe. At the concert which was held subsequently at the Woodford Castle Hotel, the official results were as far as possible announced. The awards made are as follows:—

Team Prize: (1) Essex Beaumont Motor Club. (2) Woolwich, Plumstead and District Motor Club. (3) Ilford and District Motor Club. (4) Coventry Motor Cycle Club.

Those who made non-stop runs were, under the heading of their respective clubs, as follows:—

Auto Cycle Club.—E. Musgrave, 10-h.p. Lagonda tricar; W. H. Hayes, 34-h.p. Rex; H. Alldridge, 3-h.p. Taffair; M. J. Tuchmann, 3 h.p. Quadrant.

Coventry Motor Cycle Club.—J. Browning, 9-h.p. Riley tricar; Victor Riley, 3-h.p. Riley; F. Hulbert, 3-h.p. Triumph; A. Wright, 3-h.p. Triumph.

Essex Beaumont Motor Club.—W. Applebee, 3½-h.p. Rex; C. S. Prentice, 4-h.p. Kelecom; H. G. Bright, 2½-h.p. Bat; A. G. Reynolds, 2½-h.p. Bat; E. Varney, 2½-h.p. Crownfield; W. Gunn, 10-h.p. Lagonda tricar; A. J. Macdonald, 2½-h.p. Vindec; H. C. Horswill, 3½-h.p. Brown; G. E. Revill, Iroquois; J. A. Trussell, 2½-h.p. Gate (De Dion engine); G. Walker, 2½-h.p. Trow.

Ilford and District Motor Club.—R. A. Osman, 3-h.p. Rover; A. Norman, 3½-h.p. Vindec Special; V. Baldwin, 3½-h.p. Royal

Plumstead and District Motor Club.—J. S. Fenn, 2½-h.p. Matchless; T. J. Ellis, 3½-h.p. Matchless; J. Tassell, 3½-h.p. Matchless; H. R. Stamford, 2½-h.p. Matchless; Stanley Webb, 2½-h.p. Kerry; W. R. Henoir, 2½-h.p. Simplex; W. H.

Watts, 2½-h.p. De Dion; A. F. Simms, 2½-h.p. Kerry; T. Parrish, 3½-h.p. Minerva tandem; F. Hills, 3½-h.p. Minerva tandem; C. R. Collier, 4-h.p. Matchless; H. V. Colver, 4-h.p. Matchless.

Consumption Trial.—As a result of the Consumption Trial held at Thames Ditton on September 2nd, a silver medal has been awarded to Mr. H. J. Densham for the machine which accomplished the best performance on a basis of weight and miles per gallon of petrol. Mr. Densham also takes the prize offered to the machine, irrespective of weight, which showed the smallest consumption. Mr. F. W. Applebee also receives a silver medal for the performance of his tri-car.

Tri-Car Trial.—The Auto Cycle Club propose holding a non-stop run for tri-cars about October 21st, subject to there being 10 entries received in good time. The entrance fee is 2 guineas, 1 guinea being returned for each machine which starts. There is no restriction as to the number of machines anyone may enter, and the event is open to private owners. The start will be from Barnet over a distance of about 150 miles.

Irish Motor Cycle Union.—On Saturday, in fine weather, the Dublin Centre of the Union decided the final hill climb of the season. The hill selected proved an admirable venue, being within easy distance of Dublin, and remarkably free from traffic. The change of scene from the ground usually chosen was owing to the damage done to the roads in County Wicklow by the recent storm and its accompanying floods. Saturday's event was well supported, seventeen competitors taking part in the contest. W. H. Meredith did fastest time, C. B. Franklin being second. S. Findlater, on a 1½ Indian, secured first prize in the handicap, made out in the following formula, the lowest points determining the winner:—

Time × Cyl. Cap. The following table gives the results Weight (Rider and Machine) of the various competitors, the hill being four-fifths of a mile from start to finish, the times being taken by Messrs. T. W. Murphy, Colman and Connell:—

Competitor.	Machine and Engine Dimensions.	Weight of Machine and Rider.	Time.	Points.
		lbs.	m. s.	
W. H. Meredith	Triumph (80 × 80) ...	346	1 38½	571
C. B. Franklin ...	F. N. (72½ × 80) ...	289	1 39½	567
J. G. Drury ...	Triumph (78 × 76) ...	290	1 42	638
C. G. H. Lewis ...	F. N. (72½ × 80) ...	255	1 48½	704
S. Findlater ...	Indian (1½) ...	298	1 57½	528
J. A. Armstrong	Swallow (74 × 100) ...	351	2 2½	752
B. Dunphy ...	Minerva (76 × 76) ...	242	2 6	799
C. Flood ...	Minerva (82 × 82) ...	294	2 8½	944
R. Howison ...	F. N. (70 × 80) ...	343	2 8½	594
C. S. Campbell ...	F. N. (4-cyl., 45 × 57) ...	316	2 10	812
G. M. Link ...	Wellington (75 × 80) ...	not known	2 18½	—
H. Mooney ...	F. N. (70 × 80) ...	340	2 23½	620
S. Black ...	Triumph (66 × 70) ...	256	2 25½	678
D. Kennedy ...	Minerva (76 × 76) ...	312	2 36½	771
H. Quinn ...	Triumph (75 × 80) ...	304	2 39½	981
G. Metcalfe ...	Quadrant (66 × 70) ...	266	2 41½	719
J. Mooney ...	F. N. (70 × 80) ...	404	2 43½	648

Sheffield Hill Climb.—A motor cycle hill test was carried through on Saturday at Grindleford by the Sheffield A.C. The timekeepers were Messrs. J. R. Wade and J. E. Evans; umpire, Mr. E. F. Coupe; starting marshals, Messrs. A. F. Fletcher, W. Watts, and J. Barber, and the results were as follows:—

	M. s.
J. Walker, 5-h.p. Devonshire ...	4 36
G. D. Flather, 3½-h.p. White and Popple ...	4 42
F. Donovan, 2½-h.p. De Dion ...	7 11
W. L. Gilder, 2½-h.p. De Dion Tricycle ...	8 27

Hertfordshire Open Hill Climb.—On Saturday last, a hill climb took place under the auspices of the Hertfordshire A.C., on Maple Hill, near Boxmoor, a short but sharp rise constituting a severe test for the motor cycles and also for many cars. Of the 23 entries about 14 started, the fastest time of 35½s. being made by

Godfrey on a 4-h.p. Werner. The event was a handicap, the official times published and handicap placing by class of the only machines which covered the specified course being as follows:—

Class A.—Machines 76 by 76 mm.

Driver and Machine.	m.	s.
1. A. F. Ilsley (2½-h.p. Phoenix)...	0	53½

Class B.—Machines 85 by 85 mm.

3. A. R. Child (2½-h.p. Ormonde) ...	0	40½
1. A. E. Lowe (3-h.p. J.A.P.) ...	0	42½
2. A. Mabon (3½-h.p. Mabon) ...	0	47

Class C.—Machines of any cylinder capacity.

1. O. C. Godfrey (4-h.p. Werner) ...	0	35½
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Class D.—Passenger machines.

2. J. Harwood (8-h.p. Lagonda) ...	1	7½
1. H. Jones (6-h.p. Hardy) ...	1	9½

½-Litre Motor Bicycle Contest.—For the third year the competition over a distance of 100 kiloms. for motor bicycles with a limited cylinder capacity was held on September 19th, 20th, and 21st on the Parc des Princes Track, Paris. The first year the limit was ½ litre. Last year and this year ½ litre was the maximum capacity. Twenty-seven competitors had entered, and as usual the contest was run off in heats and a final, the first two in each heat being entitled to take part in the final. The four heats were run off on the 19th and 20th in the morning and the afternoon, leaving eight machines to compete on the 21st in the final. On the first day Thomas, on an Alcyon machine, created new world's records from 70 kiloms. up to 100, as also for the half hour and the hour, his new times being as follows:—

	Thomas.	Old times.
	h. m. s.	h. m. s.
70 kiloms. ...	0 49 3½	0 49 41½
80 kiloms. ...	0 56 5½	0 56 38½
90 kiloms. ...	1 3 4½	1 3 35½
100 kiloms. ...	1 10 1½	1 10 35½
Half hour ...	42' 657 kiloms.	42' 45 kiloms.
One hour ...	85' 586 kiloms.	84' 700 kiloms.

By this performance Thomas also secured the Hydra Cup for which Cissac so recently, as recorded by us, put up new record times.

On the second day, no new records were created in connection with the ½-litre competition, but during the mid-day interval, Cissac, no doubt spurred on by his previous records being lowered, successfully attempted to further improve upon Thomas's times, he lowering the time for the 100 kilometres from 1h. 10m. 1½s. to 1h. 6m. 46½s., and bettering the distance in the hour by close upon 4½ kilometres. The details of Cissac's records we publish below, but a dispute has arisen as to Cissac being entitled to the Hydra Cup, as it is held that one of the rules requires 24 hours notice to be given of intention to compete for this Cup, and that Cissac did not give this necessary notice.

In the final Thomas secured the premier position against the other seven riders, his machine being an Alcyon with a Buchet motor, whilst the second place was secured by Anzani on a similar machine, a Magali bicycle, also with a Buchet motor, taking the third place. The times accomplished, which are a considerable improvement on the previous year's speeds, must also be regarded as exceptionally good in view of the fact that eight machines were competing on the track at the same time, and it was necessary to pass and re-pass upon several occasions. Anzani, who was travelling splendidly throughout, would probably have equalled Thomas's Alcyon except for the fact that he had to replace a sparking plug, which occupied him 2 mins. The times accomplished in the final were not as good as in the earlier stages. The following were the results of the final:—

The awards for regular running, of teams notified beforehand, were as follows:—

1. Alcyon. 3 machines qualified, 3 in the final.
2. Lurquin-Coudert. 3 machines qualified, 1 in the final.
3. Albatros. 2 machines qualified.

For the "Regularity" awards a maximum time of 2½ hours was specified for covering the 100 kiloms., the best times determining the placing.

By way of comparison of times, *L'Auto* has drawn up the following table showing the best performances for 1905 and the best performances for 1904 ranged in their order of merit:—

	h. m. s.		h. m. s.
Thomas (1905) ...	1 10 34½	Billot (1905) ...	1 21 52½
Anzani (1905) ...	1 11 40½	Méline (1904) ...	1 24 48½
Nazo (1905) ...	1 16 53½	Griet (1904) ...	1 26 7½
Anzani (1904) ...	1 18 37½	Champoiseau (1904) ...	1 26 43½
Giorgis (1904) ...	1 19 58½	Armbruster (1905) ...	1 26 57½
Capeaumont (1905) ...	1 21 50½		

New Motor Bicycle Record.—Cissac, on Wednesday last week, successfully lowered his own and Guipponi's records for ½ litre motor bicycles, and at the same time bettered the new times made the previous day by Thomas on his Alcyon machine, in connection with the ½ litre "Criterium," which was run off on the Parc des Princes track, Paris, and particulars of which we give above. Cissac, whose machine was a Peugeot, was running in splendid style, and commenced beating all records from 10 up to 100 kiloms., including the half hour and the hour distances. His time for the 100 kiloms. was 1h. 6m. 46½s., beating Thomas's previous time by over 3 minutes. The new record times put up by Cissac was as follows:—

Kiloms.	h. m. s.	kiloms.	h. m. s.
10 ...	0 6 41½	60 ...	0 40 19
20 ...	0 13 18½	70 ...	0 46 41½
30 ...	0 19 58	80 ...	0 53 23½
40 ...	0 26 37	90 ...	1 53 4½
50 ...	0 33 19	100 ...	1 6 46½
Half hour ...	...	45' 40 kiloms.	
One hour ...	...	89' 895 kiloms.	

Indian Motor Cycle Trials.—A successful trial for motor cycles was last month concluded in India between Poona and Satara and back, a distance of 140 miles, this being the same route as the one selected for the Aga Khan Cup motor car trials on the 11th of this month. Hitherto motor cycles have not been particularly in favour in India, but apparently recently they have been more sought-after and no doubt the present trials will give a special impetus to their introduction into the country. The trial was a reliability one and not one of speed, the route including the well-known Katraj and Khandalla Ghats. The ascent of these well known mountains is at times not only difficult but distinctly dangerous, the roads are in numberless places spread with loose metalling, and at points gradients of 1 in 10 and steeper have to be surmounted. On one side of the road is the rising hill while on the other the rider is faced with a precipice. The road is of this character for many miles, and at places there is practically no room even to pass. The fact that no accidents of any sort resulted may be regarded as a matter for considerable congratulation by the organisers, the run being mainly under the control of Mr. Pat Stewart, who acted as secretary, Mr. F. H. Vincent being the starter. The conditions governing the trial provided for machines up to 3½-h.p., and a maximum time of 11 hours for covering the distance, including controls. All riders timed within the 11 hours were entitled to run for the Aga Shah Trophy. This trophy was run off on the same evening, and consisted of a speed trial and hill climb to the Katraj tunnel and back. Altogether 15 entries were received for the main

Place.	Machine and Driver.	Time.	Motor.	Bore.	Stroke.	Carburettor.	Tyre.
		h. m. s.					
1	Alcyon I. (Thomas) ...	1 10 34½	Buchet ...	76	73	Longuemare ...	Dunlop
2	Alcyon II. (Anzani) ...	1 11 40	Buchet ...	76	72	Longuemare ...	Dunlop
3	Magali (Nazo) ...	1 16 53½	Buchet ...	76	72·8	Vaurs ...	Dunlop
4	Lurquin-Coudert (Capeaumont) ...	1 21 50½	Lurq.-Coud. ...	76	70	Longuemare ...	Dunlop
5	Alcyon III. (Billot) ...	1 21 52	Buchet ...	76	72·5	Longuemare ...	Dunlop
6	Buchet (Armbruster) ...	1 26 57½	Buchet ...	76	73	Malézieux ...	Dunlop
7	Chanon (Villemain) ...	1 30 51	Villemain ...	74	77	Longuemare ...	Dunlop
8	Quentin (Contant) ...	1 32 53½	Quentin ...	76	73	Malézieux ...	Dunlop

event; all the machines, with the exception of one, were ridden by their owners. The competitors were sent off at minute intervals, and the usual eliminations took place, owing chiefly to broken valves and tyres. The competitors who got through in the specified time allowed were as follows:—

Machine and Driver.	Net Time.
	h. m.
2½-h.p. Royal Riley (Mr. Pat Stewart) ...	5 11
2½-h.p. Peugeot (Lieut. Jenkins) ...	6 5
2½-h.p. Matchless (Lieut. Burmester) ...	6 15
3½-h.p. Chase (Mr. Nigel-Jones) ...	6 46
3½-h.p. Rex (Mr. F. Pooley)...	7 27
2½-h.p. Hobart (Mr. R. Mody) ...	7 56

CLUBS AND ASSOCIATIONS.

THE Society of Motor Manufacturers and Traders is continuing to receive daily returns from firms in the motor trade, for the purpose of laying statistics before the Royal Commission on the Motor Car Acts, which commences its sittings on October 16th. In addition to the firms whose names have already been published, the following have sent in returns: Alford and Alder, Ariel Motor Company, Limited, Albany Manufacturing Company, Limited, Burlington Carriage Company, Limited, Albany Engineering Company, Coventry Motor Fittings Company, Cunliffe and Croom, Limited, Cann, Limited, Dicks and Son, De Dion Bouton, Limited, Charles Foot and Son, Thomas W. Garside (Ambleside), Samuel Gordon (Bolton), Humber, Limited, J. B. Huxley and Co., Imperial Tyre and Rubber Company, Limited, Kreiger Electric Carriage Syndicate, Lowe, Bevan and Co., Legros and Knowles, Limited, McNeil, Hutchinson and Co., Limited, Murchie and Picken, H. P. Moore and Sons, Orleans Motor Company, Limited, Putney Motor Company, Limited, John Roberts (Manchester), C. S. Rolls and Co., Rice Bros. (Horsham), Sirdar Rubber Company, Limited, Sunbeam Motor Car Company, G. Saxon (Eastbourne), Thomas Tallows (Manchester), Victoria Carriage Works, Limited, White and Poppe, Limited, William Wilson and Son, Limited, Alnwick Motor Garage and Cycle Company, Limited, W. H. M. Burgess (London), W. J. Binks and Co., Bolton Motor Company, Limited, Botwood and Egerton, John Croall and Sons, Limited, A. Deacon, and Son (Llandudno), James Davers (Broseley), Free-Lance Motor and Engineering Company, H. K. Hales (Burslem), Holland Bros. (Boston), J. D. Hodgson (Newcastle-on-Tyne), S. E. Maund (Craven Arms), Mengies Bros. (Bridge of Allen), Northern Motor Company (Belfast), Pemsel and Wilson (Hemel Hempstead), A. Pellant (London), Rennie and Prosser, Limited (Glasgow), A. A. Speannan (Braintree), Buchanan Shiell (Perth), M. H. Tilley and Son (Dorchester), Charles T. Tycett (Burslem). Before the Commission sits the information obtained in the returns

Mr. Mody, who rode a Hobart machine, managed to find the customary dog with unpleasant consequences to himself, but, in spite of his mishap, he was able to be amongst those who completed the run in good time. Several enthusiasts accompanied the competitors on their cars.

The first five home were eligible for contesting the Agar Shah Rookh Shah Cup. Only three, however, started, viz., Lieut. Burmester, Lieut. Jenkins, and Mr. Pat Stewart. The first-named was early out of it owing to ignition troubles, and after a close race Mr. Pat Stewart was declared winner with 1m. 22s. to spare.

International Cup for Motor Bicycles.—Modifications are proposed in Austria, that in future years the weight of the machines should be fixed without tyres.

will be digested and tabulated by a noted firm of accountants, due respect being paid to secrecy so that no firm's business will be disclosed, and the result will be laid before the Royal Commission by Mr. T. F. Woodfine, on behalf of the Society.

THE Yorkshire Automobile Club, in view of the present public feeling, has deemed it advisable not to hold a hill-climbing competition this year, but to support by every means in its power the endeavour to stem the prejudice that exists on the part of magistrates and the police against motorists, and, with this end in view, the Club is assisting the Motor Union in obtaining all the statistical information it possibly can for the Royal Commission on the working of the Motor Car Acts, with a view of furthering this object.

COMMERCIAL POINTS.

Chénard Walcker Cars.—The sole agency for England and Wales for these well-known cars has been secured by Messrs. Miller, Baker and Oakley, who have formed a company, under the managing directorship of Mr. Godfrey Oakley, which has been registered as "Chénard Walcker Motors, Limited," with offices, show-rooms, and garage in Long Acre. We understand that Messrs. Chénard Walcker and Co., of Paris, are manufacturing an entirely new model for the English market. The chassis, which will be fitted with a 16-h.p. four-cylinder engine, having both battery and high-tension magneto ignition, will be one of the features of the next Olympia Show.

Motor 'Bus Tyres.—Referring to a paragraph which appeared in our issue of the 16th inst., on this subject, the Sirdar Rubber Company draw our attention to the fact that the 11,000 miles' service performed by a set of their tyres, on the front wheels of one of the London General Omnibus Company's vehicles, is a clear gain of 1,000 miles to the 'bus company, since the price of the tyres—which are guaranteed not to cost more than 2d. per mile—is based on the guarantee that they will run 10,000 miles.

THE Panhard and Levassor travelling workshop will be at the Wellington Hotel, Harrogate, from the 30th of the present month.

THE new works of the Motor Manufacturing Company, Limited, taken by the Receiver and Manager for the Company, are situated at Parkside, to which works the M.M.C. business is now being removed.

MR. WERNER LAURIE will shortly publish a book for the motorist, entitled, "My Motor Log Book." In the main, it is a log-book for recording dates, runs, &c., but summaries are given on such points as the 1903 Act, index marks, &c.

The first of the 24-30-h.p. four-cylinder De Dion cars to arrive in this country. This very roomy car has seating accommodation for seven persons, and is fitted with double Cape-cart hood, celluloid roll-up wind-shield for protecting passengers on the front seat, and a separate wind-shield on the back of the front seat to protect passengers in the rear of the car.

MOTOR BOATING.

The British Motor Boat Club.—The meeting which was announced for Thursday, Friday, and Saturday this week, promised to make a pleasant and satisfactory wind-up to the motor boating season. In addition to the races already announced for to-day, Saturday, a flying mile championship is arranged to be held, a gold medal being given for the fastest record. For this Brooke I., Napier, and Napier II. are entered, whilst for the general classes on the first two days, in addition to these three well-known racing craft, the following boats were down to take part:—Pallas, Elgiva, Stirling, Fiat, Baby II., St. Helena, Hummono, Comet, and H.H. the Sultan of Johore's boat.

Lake Maggiore Motor Boat Meeting.—On the 18th instant the meeting on this Italian lake was held, but only a very meagre entry list resulted. A 20-kilometre course was buoyed out, and the racing craft went round this five times, making a total of 100 kilometres. The results were:—1 Antoinette III., 2h. 30m. 3½s.; 2 New Trèfle, 2h. 37m. 2¼s. In the cruiser class (over 60 kilometres), the results were:—1 Delahaye IV., 1h. 54m. 40s.; 2 Mendelssohn, 2h. 40m. 31s. Subsequently a handicap race was run over a distance of 40 kilometres in very unfortunate weather, the rain coming down in a deluge through the whole race. In this the placing of the competitors was:—1 Delahaye IV. (22 min. start), average speed 32.2 k.p.h.; 2 Mendelssohn (52 min.), speed 22.4 k.p.h.; 3 New Trèfle (9 min.), speed 35.3 k.p.h. Further racing was abandoned in consequence of an accident to one of the boats on the lake.

THE motor boat races this year organised by *L'Auto*, and held in the Maisons Lafitte Basin for the third year in succession, will take place on October 22nd.

THREE motor racing boats engined with Mercedes motors are to be built for next year's Monaco races. They will be constructed on different lines to the ordinary Mercedes car engines, and Herr Jellineck states that they are to have eight cylinders, developing 240-h.p. at 800 revs., the weight will exceed 1,000 kilogs., and a speed of over 34 miles an hour is expected to be attained. Two of the hulls are to be built in France, and one in Germany.

A FINE example of what the motor boat can do in an emergency was provided by the accident that happened to the Lord Lieutenant of Ireland when competing in a yacht race on Thursday last on Lough Erne. His Excellency, who is a keen yachtsman, was sailing in a light yacht competition during very rough weather, having Capt. the Hon. G. Crichton and Lady Mabel Crichton as passengers. A sudden squall capsized the yacht which Lord Dudley was sailing, and he and his two passengers were left struggling in the water, a good

half mile from shore. Under ordinary circumstances they would probably have been in considerable difficulty, had they had to depend on ordinary rowing boats to come to their assistance, but fortunately Lord Dudley's motor launch was in attendance, and went full speed to the rescue, all the occupants of the boat being quickly transferred to *terra firma*. The Lord Lieutenant and Lady Mabel Crichton are none the worse for their immersion, though Capt. Crichton suffered an injury in attempting to free some of the rigging which the squall had brought down on deck.

The New Arrol-Johnston Car Co.—Originally the manufacturers of the victorious car in the Tourist Trophy Race conducted their business under the title of the "Mo-Car Syndicate," but for some time past the title of the company manufacturing this car has been the Arrol-Johnston Car Co., Limited. In order to allow their work to be conducted in a thoroughly efficient manner, and to effectively cope with the influx of orders, the company have increased their capital to £100,000. For the present the output of the works will consist of two distinct types of tourist vehicles, the smaller of which will have the horizontal type of engine, similar to that on the winning T.T. car, and the larger will be fitted with a four-cylinder vertical engine, capable of developing 24-h.p. The 12-h.p. car will probably be placed on the market at about £410, while the 24-h.p. car will be priced at about £750. In addition to the above the firm will also manufacture 12-h.p. and 24-h.p. commercial vehicles, and, in so doing, they will be swelling the now long list of high-class British firms who are devoting their serious attention to this important side of the industry.

A well-designed 24-h.p. standard char-à-banc, which has recently been supplied to the Northern Counties Committee of the Midland Railway by John I. Thornycroft and Co., Limited, for use in the North of Ireland. This machine has been adopted by the Company after a considerable trial, the only modification required by Mr. Malcolm, the locomotive engineer, being a slight raising of the petrol tank to meet local conditions, as when surmounting the exceptionally severe gradients met with on the road the vehicle is to serve, the level of the petrol in the tank was below that of the carburettor. On its home trials, the car was easily taken up hills of 1 in 7 with a full load, the petrol tank under those conditions being found to give an ample head of petrol in its usual position.

TOURIST TROPHY RACE.—The 14-h.p. Vinot Car which secured third place in the recent great race. Average speed 33.4 m.p.h., with a fuel consumption of 23.3 miles to the gallon.

AERONAUTICS.

Farcical Proposals.—The modesty of some people is truly magnificent, and a wonderful modesty is evidently the leading characteristic of a certain Mr. Edgar Wilson who, as we have chronicled, first of all attempted to take a header from Westminster Bridge with a flying-machine (stopped by the police), and subsequently took headers into the lake at Wembley Park. It is not clear that he even flew, in the true sense of the word, a single yard, though his machine once, at any rate, careered from the platform to the lake while he remained in suspense amid a limbo of ropes, from which he was subsequently extricated not without difficulty. There is virtue in the old proverb, "Who ventures wins," and Mr. Wilson is so satisfied with his Wembley Park experiments that he now proposes to attempt reaching the North Pole in an airship, which, needless to say, is to resemble Jules Verne's "Clipper-of-the-Clouds." It is to be 100 feet long and 14 feet wide, and Mr. Wilson "anticipates" being able to proceed at a speed approaching fifty miles an hour. With the modesty to which we have referred at the commencement of this paragraph, Mr. Wilson has approached the Admiralty, requesting that the Government should assist him by dispatching a cruiser with a wireless telegraph apparatus to follow his airship. It is obvious that the cruiser can hardly be expected to reach the Pole by many hundred miles, to say nothing of the question as to whether the Government will be inclined to dedicate a cruiser to the effort. Surely it would be better for Mr. Wilson to apply to the Russian Government, who might place their celebrated St. Petersburg ice-breaker at his disposal, which might be expected, at any rate, to get a little further through the Polar ice.

Strangely enough no notice has been taken of Mr. Wilson's project by the International Meeting of Polar Explorers, which has recently assembled in Belgium. He does not figure at all among that select band of discoverers.

The International Meeting mentioned above has been convened by the King of the Belgians, and includes the veteran and world-famous Professor Nordenskiöld and Messrs. Bruce and Shackleton. The result of their deliberations is to be presented to the Mons Congress, and aeronauts will certainly be interested to learn to what extent, if any, the navigable airship is likely to be put forward as an effective means for Polar exploration.

WE are able to provide some further particulars of the strange airship with oars which has excited so much attention at Los Angeles, in California. The machine in question consists of a gas bag of practically the same shape, and about the same size, as that of M. Santos Dumont's No. 9. Underneath it is slung a very light framework. Two oars with huge blades, made of a fabric stretched on a bamboo framework, are provided, and the occupant rows with these (presumably feathering carefully) as in an ordinary row-boat. It is said that a speed of as much as six miles an hour has been attained, but, needless to say, the arrangement, though entertaining, is incapable of successfully contending with anything serious in the nature of a wind.

THE new motor omnibuses, both single and double-deckers, which are being placed on the London streets by the London Power Omnibus Company, Limited., are to be known as "The Pioneers."

LONDON TO NEUCHÂTEL.—The Martini Car, which was brought over by Mr. Martini to run in the "Graphic" Race in the Isle of Man, being shipped back from Dover on its return journey from London to Neuchâtel. Mr. Martini, who was extremely disappointed at not being able to take part in the race, owing to its postponement through the bad weather, drove the car immediately afterwards back to Neuchâtel, accompanied by Mr. Douglas Miller, who appears in the photograph standing in front of the car on the left, Mr. Martini being in his seat at the steering wheel.

How to Drive.—Mr. S. F. Edge certainly deserves the title of the "Admirable Crichton" of the automobile world, for he manages the pen of the ready writer (as his articles in numerous reviews to which we have from time to time referred, most adequately testify) with the same exquisite ease and precision with which he controls the steering wheel of his car. These remarks are called forth by the very interesting and suggestive article which he has recently contributed on the subject of motor car driving to the columns of the *Daily Mail*. In this article Mr. Edge describes with rare skill, and naturally with the knowledge of the expert, the essential differences between racing and ordinary tourist driving. The very contrast of the difference in methods brings out with special force the value of a real apprenticeship to the art. It is to be hoped that every car driver will read this excellent *résumé* of the main elements involved in high class driving, and thoroughly lay the conclusions to heart. The result will unquestionably be a diminution in the already small number of motor car accidents.

THE solitudes of Mount St. Bernard, where dwell the celebrated monks and their no less celebrated dogs, are being invaded by the rhythmic throb of the motor lurry. A machine of this description, capable of dealing with a load of 4,000 kilogs., is being introduced for the purpose of transporting supplies from Martigny up to the famous hospice. The first climb of the lurry was effectively made recently. It presented a somewhat entertaining appearance, for, with a view to convincing the horses of the district that the machine was harmless, a representative of *Dobbin communis* was harnessed in front of it, forming a sort of animal figurehead. The tremendous climb was successfully accomplished in a single day.

WE are glad to find that some magistrates are disinclined to swallow any fare which the police put before them, at any rate in ordinary cases. Mr. Atkinson, the stipendiary magistrate of Leeds, was recently so angry with the contradictory, untrustworthy, and obviously lying evidence tendered by policemen in support of summonses for assault that he dismissed both of them, remarking that he refused to act on "false sworn testimony in this or any other case." Presumably the police are becoming so demoralised by the tactics and hard swearing that they have had to adopt to ingratiate themselves with the anti-motor "great unpaid" that they are carrying the same lack of principle into ordinary everyday cases. Not that all magistrates are alike, as we have often pointed out, and gradually a more liberal and humane spirit is disseminating itself among our country justices. Already several of them have protested against antimotorist tactics as frequently adopted, and to the names of these elect we have to add that of the Chairman of the East Riding Bench of Yorkshire, who, at a sitting of that Bench recently, expressed his strong disapproval of the laying of police traps to test the speed of cars on open country roads, adding that the police would be much better employed in detecting reckless driving through village streets.

THE London and North-Western Railway officials have just completed a tour of the Anglesey roads, with the object of arranging for a service of motor cars in connection with their system.

THE Great Western Railway Company have now about eighty motor omnibuses running in connection with their system, and have found them in every way successful, and an enormous help as feeders in bringing passengers and goods to the railway. The chairman of the Glasgow and South Western Railway, at the recent general meeting held in Glasgow, announced that orders had been given out by the directors for a number of passenger road motors, which were to be put on as feeders to their line at the earliest possible moment.

AMID the general extension of classes at the Battersea Polytechnic, we are pleased to note that those which refer to motor-car engineering are being expanded and brought up to date, while a course of evening lectures, followed by practical work in the design, construction, and working of petrol and other motors, has been arranged for. The Battersea Polytechnic is making a speciality of educating motor-car engineers as apart from chauffeurs, though this latter field of activity is not being neglected, as many as 200 students having passed through the course for chauffeurs since September last.

EVERY English automobilist, and indeed every Englishman, will be sorry to learn of the unfortunate accident which recently occurred to the ex-French Minister of Foreign Affairs, M. Delcassé. M. Delcassé was motoring through his native department of Ariège, when, on a very bad bit of road near Elbouch, the car skidded and collided with a tree. M. Delcassé, M. Clarac, and the mechanic, were flung out and fell into a ditch full of mud, which was unpleasant, but saved them from injury. M. Delcassé's foreign policy was always so consistently friendly to Great Britain that everyone in this country will be delighted to learn that he thus escaped serious injury.

A specimen of a luxuriously fitted 22-28-h.p. Crossley touring car which has recently been supplied to Mr. George Myers, of Birmingham, and was built specially for touring on the Continent.

NEW COMPANIES REGISTERED.

[Taking powers to manufacture or deal in motors, motor cars, or accessories, either as their principal or part of their objects.]

British Motor and Engineering Company (Limited).—Capital, £2,000 in 1,000 ordinary shares of £1 each, and 20,000 deferred shares of 1s. each.

Engineering and Motor Tools (Crocker-Barnes Patents) (Limited), 31, North John Street, Liverpool.—Capital, £25,000 in £1 shares. Object, to acquire the patents, &c., of the Crocker-Barnes Tools Syndicate, Limited, carried on at 37, Westmoreland Street, Liverpool. First directors, W. R. Biddell, E. C. Harvey, E. A. Mackenzie, C. Williams, and S. H. Crocker.

Motor World Publishing Company (Limited).—Capital, £4,000 divided into 1,500 ordinary shares and 2,500 preference shares of £1 each. Object, to take over the *Motor World* and *Industrial Vehicle Review* (Scotch Company).

Drivers' Certificates.—For the purpose of enabling drivers throughout the various parts of the country to obtain Drivers' Certificates and Certificates of Mechanical Efficiency, under the rules of the Automobile Club, with as little inconvenience to themselves as possible, special arrangements have been made to hold examinations, as follows:—

Coventry and district, Monday, October 16th.
Birmingham and district, Tuesday, October 17th.
Manchester and Liverpool district, Wednesday, October 18th.
Sheffield, Huddersfield, and Leeds district, Thursday, October 19th.
Leicester, Nottingham, and Derby district, Friday, October 20th.
Oxford, Reading, and Swindon district, Tuesday, October 24th.
Bristol, Bath, Gloucester, Cheltenham, and Taunton, Oct. 25th.
Exeter and North Devon district, Thursday, October 26th.
Plymouth, South Devon, and Cornwall, Friday, October 27th.

BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

189. 4th January, 1905. Improvement in and relating to Oil Engines. Messrs. Bellis and Morcom, Limited, and Alexander Jute, Ledsam Street Works, Birmingham. This invention is intended to promote the attainment by the heavier oils of a spheroidal condition when exposed to a hot vaporising surface, and thus avoid the acquirement of a decomposing temperature by any of its molecules whilst in the liquid condition. The method by which this effect is obtained is by incorporating with the heavy oil another liquid which is ready to assume the spheroidal condition and form a buoyant atmosphere which will suspend the petroleum particle out of contact with the hot plate, but subjected to a sufficiently high temperature to effect its entire evaporation. In the case of water being used for this purpose an emulsion is formed of petroleum and water by an intimately mixing contrivance of the egg-beating type. Such an emulsion does not readily separate into its components, and when it is fed to the vaporiser of an oil engine, the added water will operate as a sustaining and isolating agent for the suspended oil. On leaving the emulsifier the mixture should pass to the vaporiser, where, during the interval between the admission operation of two successive cycles, it is subjected to heat, and by the buoyancy of the water vapour the petroleum particles are sustained out of contact with metal which is hot enough to effect its decomposition. There is one figure. *a* is the tank con-

retained against its seat by the action of a light spring, *m*. Leading to the chamber, *k*, there is also provided a passage, *n*, from the atmosphere beneath the valve, *m*, to the vaporising chamber, *a*, from which a mixture of air and vapour is drawn into the motor cylinder through the opening, *o*, on the suction stroke of the motor. During the period between two suction strokes, the emulsion will collect on the surface of the valve, *m*, and partial vaporisation will take place there, and when the valve opens, by the partial vacuum produced below, the emulsion will be carried by the entering air as a finely-divided conical sheet of spray. By forming an upturned edge at the periphery of the valve the spray condition will be promoted.—September 6th, 1905.

19867. 15th September, 1904. Novel or Improved Means for Use in Propelling Ships, Boats, and other Craft by Internal Combustion Engines. The Wolseley Tool and Motor Car Co., Limited, and Herbert Austin, Adderley Park, Birmingham. The object of this invention is to facilitate the starting of a main central propeller, or the engines of main twin propellers, and to adapt means whereby auxiliary twin propellers may be utilised in driving

E E, are first started, while the main engine shaft, A, is out of clutch with the shaft, *a*, and consequently free in relation to the gear wheel, H, and then the shaft, A, is clutched to the shaft, *a*, and is consequently in motion by the auxiliary engines. To utilise the auxiliary engines to the best advantage in starting the main engine, they should be out of gear with the auxiliary propeller shafts, and they may be used in combination with the main engine simply for driving the main shaft when it is desired to transmit the maximum power through the shaft. The auxiliary engines may be used also in driving the auxiliary twin propeller shaft, D D, while the main propeller shaft is driven by the main engine, or may drive such auxiliary twin propeller shafts while the main engine is standing, for the purpose of reversing the ship or of keeping up steerage-way or otherwise. A dynamo-electric machine, K, having its axis in alignment with the shaft, *a*, on which is the wheel, H, capable of being engaged with and disengaged from the shaft, *a*, at will, such as through the medium of a friction clutch, L, may be driven by the auxiliary engines E E, or by either of them, for the purpose of charging accumulators, or for electric lighting, or for driving bilge pumps or other mechanism at some distance away in the ship, and this dynamo may be utilised if desired as an electric motor to start the auxiliary engines.—September 6th, 1905.

Patent Specifications Published.

Applied for in 1904.

Published September 28th, 1905.

- 9,014. P. L. AND J. RENOUF. Mechanically-propelled vehicles.
- 19,326. J. F. JAMES. Electric hand-switches for motor cycles.
- 19,788. B. MARKS. Resilient tyres.
- 20,373. A. J. CHRISTOPHE. Rotary intl. combn. engines.
- 20,493. H. FOSTER AND A. BERNFORD. Intl. combn. engines.
- 21,275. R. B. ALLSOP. Petroleum engine.
- 24,059. T. B. BROWNE. Motor road vehicles.
- 24,484. DAN ALBONE AND F. BOSWELL. Vaporiser for heavy hydrocarbon.
- 24,805. F. A. HASELWANDER. Explosion engines.

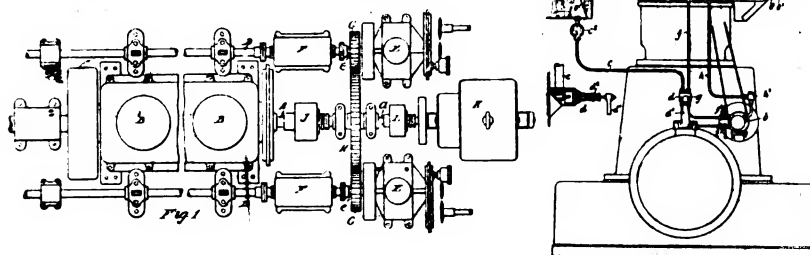
Applied for in 1905.

Published September 21st, 1905.

- 9,772. L. BLERIOT. Illuminating.
- 10,204. H. ZOELLY. Explosion turbines.
- 10,599. W. ROOS. Electromagnetic ignition device.
- 12,284. J. B. MINOGGIA AND L. E. MERE. Electric tremblers.
- 12,527. H. GERARD. Safety starting handle.
- 12,728. SOC. PNEUMATIQUES CUIR "SAMSON." Pneumatic tyres.

Published September 28th, 1905.

- 820. E. J. AND W. E. VALLACK. Garment.
- 1,206. P. G. HEDGES. Anti-skid device.
- 2,569. R. M. RUCK. Speed indicators.
- 3,110. W. J. LEWIN. Spur gearing.
- 9,257. MARQUIS A. DE DION AND G. BOUTON. Electrical regulation of speed of engines.
- 15,203. WORKSTATE FUR DUCOMMON AND MUFF. Driving mechanism.
- 15,938. A. MANS. Suspension springs.



taining a supply of the oil. It flows to a rotary pump, *b*, by the pipe, *c*, past a gauze screen, *a*, which is interposed to arrest solid impurities, a hand-regulated valve, *d*, and an automatically-controlled valve, *e*, the area of opening through which may be regulated by the speed governor of the engine. When the speed limit is reached, an arm, *f*, is caused to press on the end of the spindle of the valve, *e*, and close it more or less completely against the force of a spring, *g*. The water for mixing with the oil is shown as being taken from the water-jacket at the upper end of the motor cylinder, *c*. On its way to the rotary pump by the pipe, *f*, the water also passes an automatically-controlled valve, *g*, constructed and arranged similarly to the valve, *e*. From the pump, *b*, the mixed fluid flows through the pipe, *h*, to an apparatus, *i*, wherein, by violent agitation, the mixed fluid is beaten into fine particles, which, being interspaced more or less perfectly between each other, retain their divided conditions for a sufficiently long period to serve the purpose. A non-return valve, *k*, and regulating taps, *l* and *m*, may be fitted with advantage. From *i* the emulsion is forced through the pipe, *j*, into a chamber, *k*, above the valve, *m*, which is normally

or in reversing or in steering, as required, or to adapt means to drive a single auxiliary propeller, having its axis somewhat to the side of the main propeller, either forwards or reverse as desired. There are three figures. Fig. 1 is a plain view of the invention as applied to a main central propeller. A is the shaft of an internal combustion engine, which drives the central main propeller. B B are the cylinders. D D are the shafts of auxiliary twin propellers, which pass along at opposite sides of the axis of the main shaft, A. E E are auxiliary internal combustion engines, which are geared with the auxiliary propeller shafts through gear boxes, F F, in such a manner that each of them will drive the corresponding shaft forwards or reverse as desired, or be thrown out of gear. On each auxiliary engine shaft, *e*, is mounted a pinion, G, and on a shaft, *a*, which is in alignment with the shaft, A, is a gear wheel, H, with which both the pinions, G, are constantly in mesh. The shaft, A, is normally in clutch with the shaft, *a*, through a friction clutch, J, and the interlocking of the pinions, G, with their shafts, *e*, may if desired be by means of clutches, so as to enable either of them to be thrown out of clutch. To start the main engine, the auxiliary engines,

The Automotor Journal, October 7th, 1905.

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THE BRITISH ARMY AND MECHANICAL TRANSPORT.—Officers and men of the repair train of the Mechanical Transport Army Service Corps. Mechanical transport in the army has made exceptionally rapid strides under the influence of Col. F. T. Clayton, C.B.,—Assistant Director of Transport at the War Office, but it was not until the recent military manoeuvres that any organised base, for the efficient repair of the actual machines used in transport, was introduced. The repair train, as this section is called, consists of several travelling workshops which have been equipped under the supervision of Major W. E. Donohue—Chief Inspector of Mechanical Transport—who together with his staff is seen in the above group.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Oct. 7	Albert Brown Cup (Motor Cycling Club).
Oct. 7	Scottish A.C. 100 Miles Run.
Oct. 14	Scottish A.C. Anniversary Run (Ayr).
Nov. 10 or 17	*Quarterly 100 Miles Trials.
Nov. 17-25	Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.	
Oct. 14	Vanderbilt Cup.
Oct. 15	Gaillon Hill Climb.
Oct. 22	Maisons-Laffitte Motor Boat Races (<i>L'Auto</i>).
Nov. 3	French Voiturettes Trials (<i>L'Auto</i>).
1906.	
Jan. 26-30	Calcutta Motor Trials.
April 1-15	Monaco Motor Boat Exhibition and Races.

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

Mechanical Transport and the Army.

IN another column we give an account of a recent development in connection with mechanical transport in the Army. The British military authorities have been steadily developing the mechanical transport branch of the service till it has now reached a very high degree of efficiency, and they have this year made a departure which distinguishes the present position of that branch of the Service in a very marked way from what it has been in the past. Hitherto, the mechanical transport department has been a branch which on active service was condemned to operate practically without a base, and when repairs were necessary, difficulties were naturally liable to be encountered. Now the progressive spirit of the officers responsible for its organisation has provided it with the most effective base possible—a base that is itself of a mobile character. We refer to the repair train—mobilised for the first time at the recent manoeuvres—which now forms an integral part of this branch of the service, and which renders it, in practically all respects, self-supporting and independent of circumstances. The organisation of this repair train is a striking proof of enterprise and progress, and it is of the most favourable augury for the progress which we may expect this essential department of military efficiency to make in their hands.

More Power for Local Bodies—Perhaps?

THE people who love not the automobile are particularly anxious to increase what are termed "the powers of local bodies." Such a proposal has been put forward by the Paddington Borough Council, who are anxious that the next Motor Car Act should have this effect, and the Highways Protection League, which might be termed the Automobile Suppression Institution, is notoriously of the same way of thinking. The County Councils and the Borough Councils, which are the only local bodies under the Motor Car Acts (although District Councils and even Parish Councils think they are), have, with a few notable exceptions, been the regular mouthpieces of anti-automobile-monomania. As their members are mostly small tradesmen or farmers, with either squires or brewers as chairmen, this is not greatly to be wondered at, and no doubt the other people who would like to improve the automobile off the face of the earth, are quite wise in proposing to increase the powers of such provincially-minded representative assemblies. We are frequently having instances of what local bodies would do if they had all the powers they would like to have, and if they could regulate automobile traffic as they would like to do. The districts in which a speed of more than 10 miles an hour would be permitted would then be few and far between. The correctness of these observations is well illustrated in the case of the Bradford Town Council, one of whose prominent members has suggested that the best method of limiting the speed of motor cars is to empower the local registering authorities to refuse the registration of cars unless they are fitted with a speed and mileage recorder, and are incapable of travelling on a "level plane" at more than 20 miles an hour. This member of the Bradford Corporation objects to "the only mode in use at present for checking the speed, *i.e.*, having a given distance carefully measured and policemen stationed there with stop-watches," as he thinks this is far from satisfactory and has the *appearance* of setting a trap. We are fully in agreement with the Bradford Town Councillor on this point. So widely indeed has his view been generally accepted, that the expression, "police-trap," has in some unregenerate circles been applied to arrangements of this description.

Testimony to the Importance of the Industry.

GRADUALLY, automobile engineers have been taking more and more advantage of the most recent improvements in metallurgy, though it has after all been but gradually that they have recognised what the up-to-date steel maker can do for them. Official recognition has now been bestowed on automobilism by the Iron and Steel Institute by the reading at this year's meeting of that institution of a paper by M. Leon Guillet on "Steel used for Motor Car Construction in France." All great industries react upon one another, and the demand for the highest possible class of shock-resisting material which modern automobilism has created, has already produced a considerable effect on the manufacture of the higher grades of steel.

Other papers read at the Sheffield meeting cannot fail to be of interest to automobile engineers. Among them we would particularly refer to the paper by Messrs. Richards and Stead, on "The Application of the Re-heating Treatment to Ordinary Steel Castings." The marvellous effects produced by this process on forged steel were described by us when this method of treatment was first introduced, and it now appears that a similar great

improvement can be effected in the structure of ordinary steel castings. Mild-steel castings are employed to an ever-increasing extent in automobile construction, and this extension of the Stead process is certain, therefore, to benefit automobile manufacture.

Clearing for Action.

THE day when the great campaign will open is now rapidly approaching. On the 16th of the present month the Royal Commission will commence its sittings, and no one can entertain the slightest doubt that on the result of its deliberations the future of the motor car industry in these Islands will very largely depend, at any rate for some, and probably for many, years. The Motor Car Commission may be to a large extent regarded as a Bench of judges and legislators combined, who are entrusted with the weighty duty of deciding what the future of the greatest English industry of recent growth shall be. We have frequently urged upon the automobile world the importance that attaches to having the case of the motorist and automobile manufacturer adequately placed before the Commission. It is satisfactory, therefore, to learn that the forces on our side are already shaping well, due to their being most adequately and skilfully marshalled for the opening of the campaign.

A Splendid Harvest of Evidence.

MR. REES JEFFREYS, under the ægis of the Joint Committee of the A.C.G.B.I. and the Motor Union, has been working with the most admirable fervour and intensity to get together exhaustive statistics and data in support of the motorists' case, and the mass of information which has been collected and which will form the basis of the evidence they will put before the Royal Commission has, we believe, exceeded all anticipations. Special offices have had to be secured and a considerable staff of clerks has had to be specially engaged for the purpose of dealing with it, and they have been compelled to work long hours and at high pressure. Evidence in favour of legislation that will promote the development of the automobile movement has come in, not only voluminously, but from *unexpected* sources, a large amount being furnished, contrary, perhaps, to anticipation, by people who are themselves non-motorists, including medical men who have had to give evidence in cases of accident, and whose good word for the automobile cannot fail to make a profound impression upon the Royal Commission.

The Society of Motor Manufacturers and Traders, too, have left no stone unturned and no nerve unstrained to provide the Commission with the statistics needed to enable them to form an adequate opinion of the present extent of the great development and the imposing dimensions to which the automobile manufacturer of Great Britain has already attained. For this purpose, the Society have taken a census of all the manufacturers in the kingdom, providing information regarding the number of hands employed, the amount of machinery they use, and other statistics of a similar kind. To this census, no less than 126 different firms of automobile manufacturers have already replied.

The subscriptions of both the society as a body and of their individual members and of private individuals, to the war-chest of the Joint Committee of the A.C.G.B.I. and the Motor Union, have been numerous and munificent. In fact, that fund now stands at the imposing

figure of over £2,900, and will probably have been further substantially increased by the time this number of the Journal is in the hands of our readers.

The energy of both these great bodies, and the splendid way in which they have been supported, not only by private automobile owners and manufacturers, but by unprejudiced non-motorists who recognise what the future is to the automobile industry, and its development will contribute to the general well-being of the country, has been most encouraging, and of the happiest augury for the ultimate result.

Dealers' Marks—A Satisfactory Decision.

CONTEMPORANEOUSLY with their admirable work with reference to the Royal Commission, the Society of Manufacturers have been giving very careful consideration to the question of dealers' marks, and to the preposterous decisions that have been given under this unsatisfactory section of the Act by a number of magistrates. Hitherto decisions on this point have nearly all gone one way, but we are now glad to be able to chronicle an important case which will, we trust, be the forerunner of a generally more sensible attitude on the part of magistrates. Mr. C. E. Hutchin, an employee of Messrs. Thornycroft and Co., who was testing a chassis with a temporary body attached to it, the car being provided with a trader's red number, was at the West London Police Court summoned in the usual style for driving an unregistered car. After a tough fight, at which experts were called to explain what "chassis" and "bodies" really were, the magistrate observed, in dismissing the summons:—

"That he was quite satisfied with the expert evidence given by the defence. It was almost a certainty that neither the legislature nor the draughtsmen of the Act contemplated such a point as the one raised on the present summons, and for the simple reason that from the beginning of the motor car industry all manufacturers, traders, and dealers in cars regarded the chassis of a car as the motor car proper. The body formed no part of the car that had to be tested, viz., the machinery."

We trust this decision will have some effect in introducing common sense into the views taken by other magistrates on this question. The loosely worded passage in the statute has been continuously interpreted by police and magistrates in a manner in which the legislature certainly never intended, and in a way which has amounted to nothing more nor less than persecution of the manufacturer. The decisions of magistrates unfortunately do not count as precedents, but a Metropolitan Magistrate of Mr. Lane's standing commands so much general respect that we feel sure we shall hear less of these vexatious prosecutions in future.

Should be brought before the Royal Commission.

OF even more importance, however, is it that the matter should be forcibly brought before the Royal Commission, a point which we can rely upon the Society and the Joint Committee to do. Fortified with Mr. Lane's decision they will be able to make out a strong case that the phraseology for whatever section of the new Act may be devoted to this question shall be made clear and intelligible, and at the same time even indulgent. The obvious intention of Parliament was to afford a relief to manufacturers, and it is to be hoped that the Royal Commission will recommend that the new law shall be so drafted as to do so.

Commendable Enterprise.

ON more than one occasion have we made it our business to point out that for the British automobile industry to be placed in a position in which it can really satisfactorily compete with the great Continental manufacturers, what is needed is the establishment of works on such an extensive scale that advantage can be taken to the full of modern improvements in machine tools, organisation, and universal standardisation of parts. The Argyll Company have, as we chronicled at the time, recently adopted this line, and have laid down an immense works which, when completed, will enable them to turn out some 2,000 cars annually. But the Scottish enterprise, that same splendid combination of engineering and business capacity which has made the northern half of the United Kingdom—and particularly the neighbourhood of Glasgow—famous throughout the world, and which recently led to the winning of the Tourist Trophy in the Isle of Man by the Arrol-Johnston Company, has not stopped there. The organisers of the great Argyll undertaking have recognised that an outlet for their cars in the *centre of the world* is imperatively called for, and the same spirit which has prompted the great development of works in the north has now proceeded to the formation of an allied company which commands what we believe to be the largest showrooms in the Metropolis, whose business it will be to introduce the Argyll cars on an adequate scale to the London district. The combined enterprise and far-sightedness shown by both these great departures are a most encouraging sign for the future of the British industry. They also form a splendid recognition of the importance of the automobile movement, for when Scotch capital, controlled, as is universally recognised, by the hardest-headed people in the world, has shown itself willing to embark in automobile manufacture and distribution on such an extensive scale, even the most prejudiced opponents of the movement must recognise that its future is no longer in the slightest degree doubtful.

More Extortions by the "Familiars" of the (H)andover Inquisition.—There was a further bag of motorists and corresponding fines last Saturday at Andover, when, as usual, during the performance of a farce, facetiously called "Justice," sums varying from £1 to £10 were raked in for the relief of the local rates. The farce, also as usual, was under the direction of Colonel Harmar. With well simulated indignation, one of the police constables stated that a driver, when stopped in the usual trap, declared "It is no use talking to you, as you will only swear our lives away." In spite of this he was let off with the moderate fine of £3. Mr. George Burfit, of King Place, Baker Street, was fined £5, and Dr. William Freeman, Weyhill, and Mr. Albert Joseph Cox, of Wandsworth, were mulcted in £10 each, on the ground of it being their second offence, though if they often proceed through the Andover police trap they will very easily run up their fiftieth. "Here Satan's sole good work deserves insertion"—the Bench, either satiated with fines, or melting under the influences of the adjournment for lunch, let off a chauffeur with a fine of £1, as he requested them to "make it as light as they could, as his boss wouldn't pay his fines." No doubt his "boss" thought he deserved all he got, if he were foolish enough to drive anywhere near the (H)andover infected circle.

THE BRITISH ARMY AND MECHANICAL TRANSPORT.

THE BRITISH ARMY AND MECHANICAL TRANSPORT.—General view of Hurley Camp, where the repair train was stationed during the recent military manoeuvres.

EVEN although Englishmen seem imbued with a love of criticising the organisation of our military forces, yet at heart there is no national institution so much beloved by the true Briton, nor one whose doings evoke so much popular interest, as the British Army. Certain departments are so unfortunate as to call forth adverse comment from an erudite and far-seeing Press, but for one section at least—the Mechanical Transport Corps—the *raconteurs* of the recent military manoeuvres have had unstinted praise. Of all military organisations, the most go-ahead is, perhaps, that which has to do with the mechanical transport of army stores. As in the case of other comparatively young institutions, its progress has been more easy because untrammelled by precedent, but however that may be, it is nevertheless certain that, under the guidance of Col. F. T. Clayton, C.B., this important branch of military transport has made exceptionally rapid strides ever since its inception. It was, in fact, due to Col. Clayton that this phase of automobilism came into existence at all, so it is to him that the British Army owes the introduction of traction-engines and other similar machines as a supplement to its existing system of horse transport.

There is nothing more necessary for the well-being of an army or the success of a campaign than adequate transport, and the army that does not possess it is certain, when engaged in active operations, to be sooner or later left at the mercy of its enemies. Animal transport will prob-

ably always survive to a certain extent for military services, but every year the importance and effectiveness of mechanical transport increases, and—appropriately enough—the military transport department of the British Army is one of the most efficient and progressive branches of the service.

A Lesson of the South African War.

At the present day, mechanical transport in the army may be said to have only just been born, but already it has done much good work. It was, as everyone knows, during the South African War that the new system received its real christening, and perhaps the most valuable feature of that trial was, as is usual with all first attempts, the lessons it taught as to the most suitable lines for future development. One of these morals was the absolute necessity for an efficient repair station capable of acting as a mobile base in time of war. Liability to breakdown is, of course, a factor of automobile traction which must ever be provided against, and, in the field it becomes, without adequate provision for contingencies, a menace to the efficiency of an otherwise well-organised system. Thus, in South Africa, it was the absence of such an element which constituted the greatest obstacle to the successful use of mechanical transport during the war, and it was owing to the presence of this formerly missing factor that Hurley Camp was able to lay claim to so much interest at the time of the recent manoeuvres.

Captain Hill. Major W. E. Donohue. Lieut. Blamey.

THE BRITISH ARMY AND MECHANICAL TRANSPORT.—Officers in charge of the repair train at Hurley Camp. Major Donohue, who is Chief-Inspector of Mechanical Transport, is responsible for the technical equipment of the train.

THE BRITISH ARMY AND MECHANICAL TRANSPORT.—Traction engines of 78th Company Army Service Corps at Hurley Camp, under the command of Capt. Hayter. These are the machines which actually carry out the transport work, and it is their presence in the Army which has called into being the repair train, which acts as a base for their operations.

The Repair Train.

Under the supervision of Major W. E. Donohue, Chief Inspector of Mechanical Transport, who has been assisted by Lieut. C. S. Lyon, there has now come into existence a unit of mechanical transport known as the "Repair Train," which is not only capable of forming an efficient base of a permanent character at which damaged transport machines may find speedy attention, but is also sufficiently mobile to readily respond to any call for its sudden translation which may be made at the instance of military tactics. In fact, mobility is the leading feature of the present train, which being the first of its kind, however, must not be considered as a final model. Other systems will be tried, and possibly something quite different may eventually be adopted, but no outcome of the future can deprive the present repair train of its very great interest, since it is the first successful attempt to provide the coping-stone for a definite system of organised mechanical transport.

The repair train, as we saw it at Hurley Camp—where the photographs illustrating this article were specially taken by us—consists of six wagons formed in two independent sections of three, each of which is under the control of its own steam traction engine. The engines are of a standard type, and the wagons themselves have been improvised from existing vehicles, so that their appearance must not be taken too literally as typical of a perfect example of a particular system. The first section is self-contained, the other section is more in the manner of a pantechicon for the removal of apparatus which requires independent floor space for its use. It is in the first section, for instance, that the machine tools are situated, while the second section affords a storage for the foundry and smithy plants, which obviously could not be erected as permanencies within the confines of a military wagon.

Electricity, the modern agent for mechanical power transmission, demonstrates here as elsewhere its peculiar adaptability to improvised surroundings, and in the first

THE BRITISH ARMY AND MECHANICAL TRANSPORT.—First section of the repair train. The three wagons comprising this half of the train form travelling workshops and contain machine tools which are electrically driven. A dynamo is installed in the first wagon.

wagon of the train is installed a $6\frac{1}{2}$ kilowatt (8.7-h.p.) dynamo—which is at present belt-driven from the traction engine—for the supply of light and power throughout the camp. In the next wagon, is a 6-inch lathe and a milling machine, while the last wagon of this section contains a drilling machine and an “H.F.” vulcanising plant for the repair of the pneumatic tyres used on the motor cars now so largely employed by officers in the execution of their duties. Here then, in itself, is an efficient field workshop, but without the means of roughly fashioning articles from the raw material such up-to-date machinery would, of course, be practically useless. In the next section therefore, is contained all the apparatus necessary for the equipment of a foundry, a forge, and a carpenter’s shop. These departments have to be erected in the open, or with such shelter as can be improvised on the occasion, but they are naturally of a rough and ready character, and consequently do not

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RULES FOR MOTOR CARS.

THE following list of rules has been forwarded to Mr. S. F. Edge by the user of a Napier car. Mr. Edge has sent it to us for publication, as he thinks it contains many useful hints to anyone having a chauffeur and a motor car, as most of the points are applicable to any motor car :—

MOTOR CAR.

It is to be clearly and distinctly understood that each of the following rules is to be carried out faithfully, and that the evasion of any one of them will be looked upon as a serious offence :—

1. The chauffeur to commence his duties at 7 a.m., and the time from this hour until 8.30 a.m. to be reserved solely for the cleaning and general overhauling of the car.
2. At 8.30 a.m. the chauffeur must call for his orders for the morning.
3. The car and mechanism to be kept *scrupulously clean*.
4. Any negligence in the upkeep of the car which may tend to jeopardise the safety of the occupants when driving will be looked upon as an unpardonable offence, and will render the driver liable to *instant dismissal*.
5. It is to be clearly understood that when driving Lady ——— the car is not to exceed 15 miles an hour under any circumstances whatever, and in the streets of a town or other places where there is traffic, the speed should not exceed at most 7 or 8 miles an hour, and less according to circumstances.
6. Smoking is prohibited while cleaning or working on the car.
7. No so-called improvements or alterations are to be made to the working parts of the car without express authority.
8. Any complaint regarding the unsatisfactory working of the car through suspected structural defects is to be reported in writing. Arrangements will be made to have the car inspected at regular intervals.
9. The chauffeur is expected to be within call throughout the day, when the car is not being used by the family.
10. The car must never be put away at night without being cleaned.
11. Tools, spare parts, tyres and other accessories, when not in use, to be placed in the cupboards and shelves provided for the purpose.
12. When driving the car, every action should be gentle and not sudden, and corners should be taken slowly.
Use the brakes as little as possible.
Clutch to be kept well lubricated.
13. If the chauffeur considers that he has not time to look after the car conscientiously, he is to inform me in writing, when an enquiry will be made, and, if found necessary, the car will be left unused, at a time convenient, for a sufficient period for the chauffeur to complete his work.
14. A thorough examination should be made weekly by the chauffeur to see that the nuts and bolts are tight and securely fastened.
15. Care should be taken that every moving joint is lubricated directly before taking the car for a run. Such joints as radius-rod ends, spring clips, clutch actuating gear, &c., &c., also all grease cups, should be attended to.

greatly impede the general mobility of the unit as a whole.

Without going further into the details of its equipment, enough has been said to show that the train is a genuine attempt to meet the demands of a repairing base for a large mechanical transport corps. The present scheme provides, as we have already pointed out, a very mobile unit—for it can be on the road in two hours—and it is essentially a matter for the military authorities to decide how far this mobility should be sacrificed in the future on the score of economy. An alternative, for instance, would be to unpack everything in camp, which would render fewer wagons sufficient for the transport of the same machinery. Whatever may be the ultimate scheme, however, there is an underlying certainty of efficiency, for Major Donohue is most keenly alive to the technical requirements of any organisation of this nature.

(To be continued.)

* *

All accumulators must be kept fully charged with acid solution and current, and all electrical terminals kept clean and tight.

16. Petrol should only be poured into tanks when car is outside coach-house, as the close proximity of the gas-jet to car with full tanks would be a danger should this regulation be overlooked.

* * * *

Smoky Exhaust.—There is a witty and humorous writer on the *Westminster Gazette* who deals with motor car topics. Apropos of the present crusade of the police against the motor car with smoky exhaust, he quotes an article from *The Times* of 1838, which goes to show that in these respects, at any rate, the old steam cars—the promising but premature ancestors of the modern automobile which were driven off the roads by prejudice and prohibitive tolls—were, in this respect, unobjectionable. In the article in question occurs the following passage, apropos of Anderson’s steam carriage: “No noise is heard, no smoke, no unpleasant odour perceived, and the gallant, panting steed can gallop to his journey’s end untired and untiring. How admirable is this arrangement!” While we are informed that an even earlier steam vehicle on somewhat the same lines, for they had been running on the roads at this date some ten years, “made its way through a crowded passage without any perceptible impulse. There was neither smoke nor noise; there was no external force nor apparent directing arrangement; the carriage seemed to move of its own volition, passing horses without giving them the slightest alarm . . . going without the least vibration and preserving a balance in the most complicated movements.” Fortunately smoky and unpleasant exhaust is no more essential to the modern motor car than it was to its early predecessor.

THE President at the yearly gathering of the Royal College of Veterinary Surgeons, held on Monday last, was in an optimistic mood as to the future of the horse, and the probable failure of the motor car. Things are all very nice, he says, when a motor car is new, but when it gets old and defective then people go back to the horse. There are humours about the situation when a leading man in a profession which lives by the unreliability of the horse, looks forward with satisfaction to anticipated failures in the motor car. If the horse were absolutely reliable what would become of the Royal College of Veterinary Surgeons?

THE 18-H.P. REGENT CAR.—PART I.

A NEW car—which is known as the Regent—has just been placed on the market by Messrs. S. F. Edge, and the fact that this new model is being introduced to a critical motoring public by such a celebrated firm is in

carried in ball-and-socket joints by brackets at their forward ends. The propeller-shaft also is enclosed in a stationary tube which, being rigidly-attached to the axle casing, relieves the springs of any torque. Steering is effected by the usual type of worm-and-quadrant gear, but the tie-rod lies behind the axle instead of in front. Beneath the frame extends a metal sheath, which entirely protects the machinery from mud and dirt, while neat grease-cups are provided on all working joints that are not suitable for connection to the system of pressure-feed lubrication.

Transmission Gear.

Enclosed in the flywheel, is an ordinary type of leather-faced cone-clutch. The clutch-spring is very easily adjustable, and in order to enable the inner member of the clutch to be more easily dismantled when it is necessary to fix a new leather, the clutch shaft is made in two parts (Fig. 1), which are joined by a flange so that one of them (A) may be bodily removed in order to allow the other—

which carries the clutch—to be drawn back sufficiently for removal. The gear-box, shown separately in Fig. 2, is carried directly from the main-frame. The system of gears is the ordinary sliding spur-wheel type, and there is only one sliding member for introducing either of the three forward speeds and the reverse.

Both the through-shaft and the lay-shaft are mounted on substantial ball bearings, and the four keyways on the former, which carries the sliding member, are milled from the solid in accordance with the most up-to-date practice. A direct-through-drive is introduced on the top speed by means of a jaw-clutch, the two members of

The 18-h.p. Regent Car.—View of the new car which Messrs. S. F. Edge are now placing on the market as a low-priced up-to-date touring vehicle.

itself a guarantee of the high-class nature of its construction and workmanship.

The *raison d'être* of the Regent car in Messrs. S. F. Edge's showrooms is primarily its moderate price—as it is in order to meet the demands of clients who require a less costly car than the Napier, that this new model has been introduced. Up-to-date design, however, is the keynote of the Regent car, and both in general appearance and in mechanical detail the construction cannot fail to appeal to the fastidious. Strictly speaking, there is practically no innovation in any part of the mechanism, which has been constructed rather on well-tried lines than with a view to exploiting any novel features. In detail, however, there is distinct evidence of careful consideration as to accessibility and efficient lubrication, while purchasers of these cars reap the benefit of Mr. S. F. Edge's personal experience with the Napier vehicles, which have so many refinements conducive to considerate driving and the comfort of passengers.

Leading Features.

This car is of the live-axle type; it is fitted with a three-speed gear-box giving a direct drive on the top gear, and the four-cylinder engine is normally rated at 18-h.p. With the exception of the engine, ball bearings are fitted throughout, including the front wheels. The rear wheels are mounted directly on the live axle, which is itself carried on ball bearings. The frame is of pressed steel, narrowed in front of the dash to secure a wide steering lock, and is carried on semi-elliptic springs both in front and behind. The rear springs lie outside the frame, and they are shackled at both ends, the drive being transmitted through long radius-rods which are hinged to the axle casing, and are

Fig. 1.—The 18-h.p. Regent Car. View showing the construction of the clutch-shaft which is made in two parts, so that when the short, flanged portion, A, has been removed, the inner member of the clutch can be easily dismantled. The pipes for the pressure feed-system, the strainer, B, for the petrol, and the interconnection, C, between the side-brake and the clutch are visible in this illustration.

which are formed on the pinion attached to the driving shaft, and on the sliding member, respectively. The propeller-shaft, which is, as has already been mentioned, enclosed in a stationary casing, is universally jointed to the gear-shaft, and at its rearward end it is supported by a large ball-bearing in the back-axle casing. The back-axle, which is shown in Fig. 3 is of substantial construction, and is well stayed, while an important feature of its design—which deserves to be more generally adopted—is the four-part construction of the casing, with the formation of a horizontal joint between the two central members. This feature is a real convenience, for it enables a thorough examination of the driving bevels to be made with a minimum amount of trouble, and without the annoying necessity of dismantling the entire back-axle—imperative with the two-part construction more generally used. As for the gear-box, so for the back-axle-casing, a hinged inspection cover of useful dimensions is provided above the gear-wheels. The rear-wheels are keyed directly to the ends of the live-axle, which is supported to the axle-casing by ball-bearings.

Brakes.

The usual system of brakes is provided, a side-lever operating the brakes on the rear hubs, and a pedal actuating a brake on the driving-shaft. All the brakes have metal-to-metal surfaces, and those on the rear hubs are of the internal expanding variety. The foot-brake is situated immediately behind the gear-box, and is visible in Fig. 2. It is of the ordinary shoe type, and is operated through a toggle-lever. The hand-brake is inter-connected with the clutch, through a rod, C, visible in Fig. 1.

(To be continued.)

Fig. 2.—The 18-h.p. Regent Car.—View of the gear-box, showing the milled key-ways for the sliding member. Three speeds and a reverse are available, the top gear giving a direct-through-drive.

Fig. 3.—The 18-h.p. Regent Car.—View of the back-axle, showing the four-part construction of the axle-casing which enables the upper central portion to be removed for the purposes of inspection.



THE enthusiast or maniac who, after placing himself flat in the road in front of Dr. Stanley Tressider's car some little time ago, commenced slashing at the tyres with a knife, and when the doctor got out to object attacked him also, has just been sentenced to eight months' hard labour.

So much fuss has been made about petrol and

petroleum running into and polluting the ponds on country roads from motor cars, that it is amusing to learn that the best and most effective method of getting rid of mosquitos is to pour a certain amount of petroleum on the surface of all stagnant ponds. It is on the surface of such ponds that the mosquito develops in the larva stage, and the mosquito larva does not take kindly to petroleum as a form of nourishment.

A 1906 MERCEDES CAR.—THE NEW 70-H.P. MODEL.—PART II.

(Concluded from page 1203.)

Fig. 5.—View from the "off" side of the new 70-h.p. Mercedes Chassis.

The Chassis.

OUR four views—Figs. 1, 5, 6, and 7—of the chassis effectively show the general arrangement of every part, and therefore render it unnecessary for us to enter into any lengthy description concerning it. Comparatively little change of a sweeping character has, moreover, been made in this new model. In Figs. 6 and 7, however, the compact form of the new gear-box can be noticed, while in both those illustrations, and also in Fig. 5, the long dust-excluding casing that extends back from the engine beneath the entire transmission-mechanism is visible. Attention might be drawn, too, to the fact that the filler-cap for the petrol tank is now brought out at the back of the vehicle. The main-clutch, which is still of the "scroll" type, has

undergone a slight modification, for the oil-retaining casing, immediately behind it, now fits closely round the clutch-shaft. On former models, there was quite a considerable space between the shaft and this casing. A flexible pipe serves to lubricate the sliding sleeve with which the clutch-fork engages, and, as before, there is an intermediate ball-bearing for supporting the long propeller-shaft, midway between the clutch and the gear-box. Either of the three pedals—the two brake-pedals or the clutch pedal—is capable of disengaging the clutch.

Fixed lengthwise beneath the frame, on the "near" side, is the exhaust-box, and outside the frame, near the dashboard, are the lubricating oil tank and the tank that contains cooling water for the brakes.

Fig. 6.—The 70-h.p. Mercedes Chassis—1906 model—as seen from above. The very compact gear-box, which gives a "direct drive" on the top gear, is well shown in this view.

Fig. 8.—The 70-h.p. Mercedes engine, fixed in place in the 1906 Chassis. View from the "off" side, showing the new carburettor, the modified igniters, and part of the magneto and the governor.

The Brakes.

Following the customary Mercedes practice, two independent foot-brakes are provided, both of which are fitted close up to the gear-box. One is in the same position as on most chain-driven cars—on the differential countershaft—and the other is fitted to the projecting front end of the lay shaft. Both brake-drums can be kept cool when in use by a stream of water that can then be directed inside them, the water being fed, when desired, from the pressure-tank above referred to.

The novel feature of these brakes on the 1906 model is that they can be adjusted by hand, without the use of any kind of tool. One brake-band has—as seen in Fig. 7—a wing-nut, E, for this purpose, and the other has a small hand-wheel, E', instead. Both the wing-nut and the hand-wheel are rendered self-locking.

Concerning the hand-operated hub-brakes on this vehicle, little need be said. They are of the internal expanding type, and are rendered compensating by a steel cable in the ordinary way. On this latest model, no sprag device is employed, the ingenious mechanism that was adopted on the earlier 70-h.p. cars having evidently proved itself to be unnecessary.

The Engine.

In Figs. 8 and 9, the shape of the castings that form each pair of cylinders is well shown, as also are the yokes that hold down the inspection plugs above the valves. The exhaust-valves are on the "near" side (Fig. 9),

the inlet-valves and the igniters are on the other side (Fig. 8), and the main castings are given a distinctive tapering shape around the valve-chambers.

In Fig. 8, the new carburettor, of which we have already given a full description, will be easily recognised, fixed in position by its branched induction-pipe. The throttle-valve is controlled from behind by rods, that connect it with the governor and with the "accelerator" pedal and hand-lever. In just the same way that one port in each cylinder-casting feeds each pair of inlet-valves, so a single port, on the opposite side, serves for each pair of exhaust-valves—and the unusually simple exhaust-pipe-fitting is only held in place by four studs.

A slight change has been made in the design of the igniters, these now being somewhat more compact than formerly. They occupy, however, the same positions as before, and have

small cocks fitted in the main castings—immediately above the contact points—to enable them to be cleaned with petrol, and to facilitate starting, when necessary; the cocks are similar to those fixed centrally above the pistons—for introducing paraffin to clean the piston rings.

The lower portion of the crank-chamber, which is formed by two aluminium casings, is secured direct to the side-members of the frame, and between it and the upper portion are held the three ball-bearings that support the crank-shaft. At the front end of the crank-chamber, the gear-wheels which drive the two cam-shafts are completely enclosed in an oil-tight casing, and this casing is of sufficient size to also contain the two additional spur-wheels which operate the centrifugal pump,

Fig. 9.—View, from the "near" side, of the 70-h.p. engine on the 1906 Mercedes Chassis.

Fig. 7.—The central portion of the new 70-h.p. Mercedes Chassis, as seen from the rear. In this illustration the easily detachable inspection-cover has been removed from the gear-box, and the spring clips which normally hold it down in place are clearly visible.

on the left side, and the magneto, as well as the governor, on the right side; these auxiliary parts are separately bolted down to the crank-chamber, and are driven through flexible jaw-couplings that enable them to be easily removed when desired. Fitted in conjunction with the exhaust-cam-shaft, is a half-compression device that can be brought into play by a handle in front of the radiator; it causes the exhaust-valves to be lifted during the first part of the compression strokes. The governor, which is of the centrifugal type, lies between the magneto and the spur-wheel which drives them; it is not enclosed in any way, and its sliding sleeve is connected up in a simple manner with the throttle-valve. As usual, the igniters are actuated from the same cam-shaft as the inlet-valves, and the rock-shaft by which they are simultaneously "timed" lies along, outside, the crank-chamber.

Apart from "timing" the ignition—which is effected by the smaller hand-lever above the steering-wheel—the entire control of the engine is by the throttle-valve. The governor normally tends to close it automatically as the speed increases, but it can be opened to the desired extent by the hand or the foot of the driver. The accelerator pedal lies in a convenient position for the left foot (as seen in Fig. 7), and the corresponding hand-lever is above the steering-wheel. There is no connection whatever between the clutch-pedal and the throttle-valve.

In Fig. 7, a very good idea can be obtained of the size of the fan fly-wheel; in Fig. 8 the position of the pressure-valve is well demonstrated; and in Fig. 9 it will be seen that the necessary connection between the pressure-valve and the exhaust is made by a pipe leading into the rear cylinder-casting close up beneath the rearmost exhaust-valve.

Lubrication and Dashboard Fittings.

Not only is the large 12-feed lubricator—in the centre of the dashboard—fed by pressure from the supply tank at the side of the car, but a feed pipe is now led from that tank to the hand-operated lubricator, Q, also. In this way, it is no longer necessary to fill the glass container by hand, for the oil flows into it directly the cock is opened. The lubricator, Q, is of that type in which a hand-pump is fitted for forcing oil into the crank-chamber. From the large multiple-feed lubricator, the supply to which is controlled by a central cock, the pipes are led to every bearing on the engine, and also to the steering-gear.

To the left of the large lubricator (Fig. 7), is the cock, Q², which has to be opened when water is required in the brake-drums, and to the left of this again are the greaser, Q³, and the pressure gauge-cock, Q¹. The water to the brake-drum is also controlled by a valve that opens when either of the brake-pedals is fully depressed, and the driver is enabled to see when it is flowing through the gauge-glass, near the cock, Q². The greaser, Q³, is connected solely with the circulating pump, and ensures proper lubrication of the important bearing on its shaft. The cock, Q¹, is provided in order that the pressure-gauge may normally be allowed to remain at rest, and thus the life of the gauge be materially prolonged; the gauge is only needed to indicate the pressure in the "feeding" system occasionally—when pumping up initially by hand, or when there is any doubt as to the proper working of the automatic valve—and no useful purpose is, therefore, served by leaving it "on" continuously.

The only remaining fitting on the dashboard to which attention need be drawn has already been mentioned, this being the small hand-lever, H¹. It constitutes a part of the new Mercedes carburettor, and allows the driver to instantly and entirely cut off the petrol feed. As previously explained, it prevents any more petrol from entering the float-feed-chamber—and would therefore prevent waste if the carburettor were inclined to flood when the engine were at rest—and it also cuts off the flow of fuel to all four jets.

Table of Reference Letters for the 70-h.p., 1906, Mercedes Car.

Change-Speed-Gear.		Starting-Handle.	
A	Direct-drive bevel-pinion.	G	Catch for starting-handle.
A ¹	Bearing-bridge for A.	Carburettor.	
A ²	Internal gear-wheel.	H	Float-feed-chamber.
A ³	Sliding spur-wheel for 3rd and 4th speeds.	H ¹	Float needle-valve.
A ⁴	Operating rod for 3rd and 4th speeds.	H ²	Jet-controlling needle-valve.
B	Bevel-pinion on lay-shaft.	H ³	Cam-plate for H ¹ and H ² .
B ¹	First-speed spur-wheel on lay-shaft.	H ⁴	Hand-lever for H ² .
B ²	Second-speed spur-wheel on lay-shaft.	J	"No-load" jet.
B ³	Third-speed spur-wheel on lay-shaft.	J ¹	"No-load" port to throttle-valve.
C	Engine-driven shaft.	J ²	"No-load" port in throttle-valve.
C ¹	Sliding 1st-speed spur-wheel on shaft, C.	K	Main jet.
C ²	Sliding 2nd-speed spur-wheel on shaft, C.	K ¹	Main port to throttle-valve.
C ³	Operating rod for 1st and 2nd speeds.	K ²	"Cut-off" edge of throttle-valve.
D	Intermediate "reverse" pinion.	L	First auxiliary jet.
D ¹	Operating rod for "reverse" gear.	L ¹	Port from L to throttle-valve.
Brakes.		M	Second auxiliary jet.
E	Adjustment thumb-nut for brake band.	M ¹	Port from M to throttle-valve.
E ¹	Adjustment wheel for brake band.	N	Water-jacketed mixing-chamber.
Springs.		N ¹	Water-pipe connections to N.
F	Spring-boxes for side springs.	P	Throttle-valve spindle.
F ¹	Nuts for spring-boxes.	P ¹	Indicating, and "stop," lever.
		Fittings on Dashboard.	
		Q	Hand-operated lubricator.
		Q ¹	Cock for air-pressure gauge.
		Q ²	Cock for brake-cooling water.
		Q ³	Greaser for circulating pump.

THE EMPIRE SPRING WHEEL.—PART I.

OF all the wheels which have hitherto come before our eyes, called the "Empire," which has been brought to the attention of the public by A. S. F. Robinson—the inventor of the well known governor which bears his name—is perhaps the most original, for it shows in its design the careful evolution of a principle which has apparently not previously been attempted in the construction of resilient wheels. If for no other reason than that laminated leaf-springs (instead of those of other patterns) are employed for the purpose of giving resiliency, the "Empire" wheel would be deserving of special attention from those to whom a satisfactory spring wheel is becoming a matter of some moment.

Even those motorists whose interest in matters technical is of the most superficial nature will have at least noticed that leaf-springs are almost exclusively used in all cases where the resilient member, whatever it may be, is subject to shocks of greatly varying intensity. Where helical springs are employed under such conditions, it is usually because of their greater convenience and their extreme compactness. It is, in fact, doubtless due to their compactness that helical springs have been adopted so largely in the design of spring wheels.

It is not so much for the mere employment of leaf-springs, however, that Mr. Robinson deserves credit for his invention, as for the "compensating system" which forms its essential feature. The idea of compensating a system of springs is nothing new in itself—it has been employed in certain types of locomotive construction for years—but, in order to derive its benefits and also to obtain the reliability that accrues from the use of leaf-springs, in such a comparatively diminutive member as a wheel, very careful thought and construction are naturally necessary.

Principle of the Wheel.

The term "compensation," when applied to a system of springs, means that the individual springs are so connected between themselves that one and all are compelled to take whatever load may be imposed on either one of them. Usually the end of one is more or less directly coupled up to the end of the next, instead of being separately and directly fixed to some independent body, and the result is that the deflection of one essentially involves a deflection of the next. In this way the load is not equally *divided* between the springs in such a way that the load on each is reduced, but every spring is called upon to carry the full load. The further point, however, which has to be recollected when considering any such system of springs as this, is that, until the load imposed direct upon any spring is greater than that

already imposed on any other, none of the springs in the whole system undergo any increase of strain whatever; this means, in short, that every spring in the whole system is deflected to an extent that depends solely upon the strain on the spring which is carrying the greatest load, and that supplementary loads of smaller magnitude imposed on any other springs have no effect at all on their deflection.

With a view of showing the advantages of compensating the springs in a spring wheel, it is necessary to remember the manner in which the load on a wheel is transferred from place to place over the rim of a wheel as the vehicle moves along. This point is best illustrated by imagining the rim to be cut away altogether, so as to leave the spokes directly in contact with the ground. Under such conditions, the load would be supported either by one or by two spokes at any given instant. Now, if each spoke has a spring in it, it will be obvious that each spring will at one instant be carrying the full load, at another instant half the load, and the next instant no load at all.

If the rim be now replaced, the immediate effect will be to distribute the load simultaneously upon all those spokes which, at any moment, point radially downwards; this load is not divided equally, for that spoke which is vertical still receives the largest share, but still it is divided, and instead of the jerky action described

Fig. 1.—The "Empire" Wheel. View of a Peugeot Car fitted with an experimental set of spring wheels.

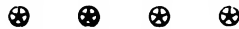
above the maximum stress on each spring is not only reduced in magnitude but the period of its application is considerably increased. Many spring-wheels are constructed on this principle; the springs may not be actually inside the spokes, but they are arranged radially from the hub, and the consequence is that the maximum amount by which each and every spring will, in turn, be stressed depends on how many springs can be used in each wheel. In itself the maximum load on a spring is unimportant, for springs can be made to stand any ordinary load likely to be imposed in motor car practice, but as determining the amplitude of the "cycle" or variation of stress which occurs in each spring it is very important. It will be obvious that, in the arrangement of springs under consideration, those pointing upwards at any instant cannot be loaded at all, so that every spring of the entire system must, therefore, undergo a "cycle" of stresses, and it merely depends on the number of springs whether this cycle will impose a severe strain on each spring or not.

It is principally as a factor producing molecular fatigue that the magnitude of this varying strain is important, but there is also the loss of engine-power which it occasions, for the release of one spring cannot entirely

compensate for the work done in compressing the next. What is wanted, therefore, is some means of reducing the amplitude of the "cycle" at the other end, in fact, some device whereby the springs are prevented from going back to their unloaded state at all. There are two ways of doing this with leaf-springs, one is to initially stress each of them individually until they can support the normal load without bending, and the other is to "compensate" them as Mr. Robinson has done in his wheel—so that each spring is always loaded as much as any other in the system. The first of these methods produces what is virtually a "solid" wheel within the limits of normal loading, although the wheel is still capable of absorbing sudden shocks; but, with the second method, the wheel is a spring wheel always.

Although by compensating the springs, the amplitude of the cycle is reduced, it is impossible to eliminate it altogether because, no matter how many spokes there may be in a wheel, there must always be a series of intermediate periods when the number of spokes which

(To be continued.)



THE LEMPEREUR NON-SKID.

BOTH at the official trials in France, and at those held by the A.C.G.B.I. in this country, the device invented by M. Lempereur—for which Messrs. Mann and Overton are sole concessionaires—secured the gold medal. Recently, how-

sisting of an adjustable hook which can be screwed up until the band is drawn tightly down on the tread of the tyre. It is thus no longer necessary to deflate the tyre in order to attach the non-skid. Another modification is the provision of two leather strips under the chains, which protect the tyre from direct contact with the metal, and also enable the transverse plates to obtain a better grip on the ground.

AMONG the many contributions to the dust problem we direct the attention of our readers to a paper on the subject in a recent number of *Nature* (for September 14th), by Mr. W. R. Cooper. The article in question contains a *résumé* of what has been already done in regard to experiments in the effect of different shapes of car bodies in raising dust, and adds a number of experiments of the author's own which were conducted with a simple apparatus, consisting of a single cycle wheel dragged by a special means over dusty surfaces so as to reduce the problem to its simplest dimensions, and enable the effect of various surfaces in the neighbourhood of the wheel to be studied. The article is copiously illustrated, and shows the relatively small amount of dust produced by a thoroughly hard pumped-up tyre, the greater amount of dust produced by a slack tyre, and the varying amounts of dust produced by different forms of surface, and different planes arranged in the neighbourhood of the wheel. The article, of course, does not claim to in any way have solved the problem, but is a useful contribution on what may be termed the elements of the subject.

THE LEMPEREUR NON-SKID.—Views showing the modified form of this device, which is no longer made as an endless band, and is now fitted with leather strips to prevent the metal touching the rubber of the tyre. The special fastener, A, by which the non-skid is secured in position, is also shown on enlarged scale in this illustration.

ever, this non-skid has been somewhat modified. Formerly there was an endless band of loose metal plates attached to two chains, which relied on the inflation of the tyre for fixing it in place. Now, however, the chains are provided with a pair of special fasteners, A, each con-

THE clipped dog is one of the products of civilisation on the aesthetic value of which opinions may differ. The clipping is probably satisfactory to the dog in summer, and almost equally certainly gives him rheumatism in winter, but as the craze has been established, the petrol engine has adapted itself to the circumstances, and one of the amusing inventions, which is becoming a recognised institution in France, is a movable clipping arrangement for poodles in which the activity of the men who usually turn the handle of the clipping apparatus is replaced by a petrol engine mounted on a truck.

REPAIRING A PUNCTURE—A MODERN METHOD.

(Concluded.)

THE patch is now ready for vulcanisation, but before putting it on the vulcaniser care must be taken to see that the pressure gauge is exactly at 65 lbs. per square inch. When the pressure has been obtained by adjusting the telescopic slide on the burner, a piece of paper dusted with French chalk should be placed over the repair, and the patch laid face downwards on the vulcaniser. The press is then put in position, and screwed down *thumb tight*, after which the tyre is allowed to cook for just fifteen minutes, the steam pressure being maintained

been sufficient to indicate the principle of the process. In the case of a puncture, it would, of course, suffice to poke the end of a narrow strip of compound into the hole and form a tiny patch on the outside to fill a very small depression, which should be cut in the tyre in the same way that the edges of the larger burst are bevelled.

With a very large gash, on the other hand, it is uneconomical to use compound throughout, because a piece of old inner tube roughly cut to shape may be inserted, after bevelling the edges, and vulcanised in

Fig. 9.—Afterwards apply a coating of cement.

constant throughout. After the patch is vulcanised, the tyre should be quickly removed, and dipped in cold water; this is not an absolute necessity, but it is a precautionary measure, for the cold water shrinks the rubber quickly, and closes up any minute gas bubbles which might possibly have been formed during the process of vulcanisation.

Fig. 11.—Wait until the cement has become "tacky" before the first strip of compound is applied as here shown. Remember to warm the compound before using in order to make it thoroughly plastic.

place as if it actually formed part of the original tyre. When a patch of this description is longer than the vulcaniser will accommodate, the cooking may be per

Fig. 10.—Don't forget that a piece of paper must be inserted to protect the opposite wall of the tyre.

The repair is now complete, and instead of the rough plastic yellow compound there appears a perfectly smooth elastic insertion of grey rubber which, if the operation has been properly carried out, is indistinguishable in substance from the original material of which it now forms part. Not only is there this similarity in substance, but there is no necessity for the new material to be any thicker than the old, and the fact that a sufficiently strong repair can be made by a flush joint is a feature which those who have experienced the trouble arising from the heat generated by a patch on a tube will readily appreciate.

The foregoing description is an indication of how a vulcanised repair can be accomplished by an amateur. Although only one case has been illustrated, it will have

Fig. 12.—Work the strip of compound gradually towards the centre until the hole is entirely filled in, then "caulk" all protruding edges with a penknife. The repair is then ready for vulcanisation.

formed in sections, care being taken to see that the extreme edge of each "bake" is properly vulcanised by allowing this portion to come in contact with the vulcaniser when the next section is being "cooked."

Steam is used in the process of vulcanisation, because it offers a comparatively easy means of obtaining the required temperature and of maintaining it constant. The temperature—which in this case is indicated for convenience by a pressure gauge instead of a thermometer—is higher than it is in the usual process of tyre manufacture, in order to prevent the other part of the tyre from becoming affected by any prolonged "cooking." The compound has, for this reason, to be specially prepared in order to render this rapid vulcanisation possible and effective.

THE ARGYLL INVASION OF LONDON.

The Argyll Company's special train, which arrived last week in London carrying a huge consignment of Argyll Cars, direct from Glasgow. This train was made up of no less than 30 trucks, all carrying new cars for the London depot. This is the largest consignment of motor cars of the same type which has ever been delivered in one lot.

RANGED round a banqueting table set in the form of a horseshoe, about fifty friends and representatives of the leading general and technical Press last Tuesday night foregathered at the Trocadero Restaurant to wish luck and to welcome a bold and important venture which has been established in London under the title of Argylls London Limited, for the purpose of handling in a very extensive and exceptional form, the cars which are now so well known under the title of "Argyll," and built in Glasgow by the Argyll Motors, Limited. There was no mistake as to the genuine welcome which was accorded to those responsible for this very important scheme, as it was felt that, irrespective of the gain which it was confidently anticipated would accrue to the immediate promoters of the undertaking, the mere fact of opening up so extensive a showroom as that which the new company possess in Newman Street, Oxford Street, and the facilities which are to be afforded to the general public to select a car—and if necessary drive straight away with the selected machine—must necessarily further open the eyes of all as to the growing importance of the industry, and show how utterly futile it would be for the rabid and prejudiced anti-automobilists to endeavour to stem the tide of prosperity which the enterprise and initiative of British manufacturers is now causing to flow with so strong a stream.

Immediately concerned in the new company is Mr. Eustace H. Watson, who, as chairman of Argylls London Limited, occupied the chair on Tuesday evening, whilst he was supported by Mr. Alec Govan, to whose indefatigable energy the success of the Glasgow Company is due, and by Mr. W. Alex. Smith, who has financially supported Mr. Govan's commercial instincts so generously, with the result that one of the largest automobile factories in the world has been constructed, where all-British cars of various powers are being manufactured to the benefit of Great Britain, in numbers which have hitherto never been equalled in this country, certainly not exceeded.

During the evening, some interesting particulars were supplied by the chairman, Mr. Watson, in respect to the enormous undertaking which has grown up round the manufacture of Argyll cars. At the new works alone, which are about two miles below Loch Lomond, 80,000 tons of material had up to the present (since April) been employed for construction, whilst at least 150,000 tons

would be ultimately required for their completion. The ground which the company owned, and which would admit of expansion to almost any extent, was fully sixty acres, whilst the present buildings covered the huge area of twelve acres. Of this, the machine shop alone occupied $2\frac{1}{4}$ acres, and although the works were in no way as yet capable of employing their full complement of men, about 2,000 employees were at present engaged in the construction of the company's vehicles. When the works were in full operation, the output would be at least 2,000 cars per annum. Dealing with the new London premises, the total floor space is 27,000 square feet at present, whilst extensions have already been arranged for, giving an additional 17,000 square feet.

Accommodation is at present available for 40 cars—subsequently for 60 cars—at the same time. The main principles which will govern the company's business will provide for the actual selection by purchasers from stock, so that they may try any car that is on view at a moment's notice, and may there and then take it away with them, when completely satisfied. By way of a commencement, a special train was run from Glasgow to London last week with a portion of the first delivery of these cars, this train consisting of no less than 30 trucks, a photograph of which we are able to reproduce above. Repairs of every character can also be dealt with promptly on the premises, a workshop having been fitted with the very best machine tool equipment, whilst a selected and qualified staff of mechanics has been brought from the Glasgow works to ensure perfect workmanship. One of the most important features of the London depot will be the stocking of a complete set of spare parts for every type of Argyll car, and the system will provide for the immediate despatch to any address of any part required. An equally important step is being taken in regard to a stand against the scandal which exists in many directions of giving "tips" to drivers of cars. Under no circumstances will any such donations be permitted, and the most drastic steps will be taken in the event of even the smallest suggestion being made in this respect. By way of compensating the driver, however, for the absence of such illicit commission, the company are instituting a prize competition by which the driver of every Argyll car will receive, for running and driving his car economically for

a distance of 5,000 miles, a cash prize of £5 in addition to a certificate setting forth the recipient's qualifications as a careful and economical servant. For this purpose, maximum sums are specified by the company which should not be exceeded for the maintenance of the cars of various sizes, the prize and certificates being based upon these figures.

In the course of the evening Mr. W. Alex. Smith, the chairman of the Glasgow company, paid a very high tribute to the ability and industry of his colleague, Mr. Govan, saying that the remarkable success of the Argyll firm was almost entirely due to him. Referring to Mr. Watson, the managing director of the new London concern, Mr. Smith also expressed the great satisfaction which he and the Glasgow concern felt at having so excellent a business man to look after their interests in the Metropolis, and with the fine premises that had been secured at Newman Street.

The toast of the "Automobile Movement" was dealt with by Mr. Rees Jeffreys in a very able speech, who, as usual, was carried away by the earnestness with which he deals with any subject with which he is closely allied. He naturally dilated upon the importance of the Motor Car Commission and its influence upon the future of the industry, and he ridiculed the fancy picture of the £1,000 car and its owner with unlimited wealth. The

real state of affairs was gradually being understood, and from the marvellous mass of statistics which were now being collected for the assistance of the Royal Commission on the Motor Cars Acts, it was becoming clear that the majority of cars were in the hands of men who were anything but wealthy. They were largely in the hands of medical and other professional men, who found them of inestimable value in daily rounds, and cheaper, moreover, than the older method of horse and trap. He felt convinced that, with the unexpected response which had been made by every class of the community in regard to the use and enormous advantages of motor cars, the evidence which the Club, the Motor Union, and other bodies would be able to place before the Royal Commission, would enable the case for the automobilist to be placed in such a strong and reasonable light, that he had the greatest hopes of a generous report which would naturally follow the production of the facts which were now being put into presentable form. In regard to increased taxes on automobiles which have been suggested, it should rather, he thought, be the reverse, in view of the saving which followed to ratepayers in many directions by the adoption of motor vehicles for municipal purposes. He would even go as far as to suggest that ratepayers ought to offer a bonus to motor vehicle manufacturers.

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RACES, RECORDS, AND TRIALS.

HENRY EDMUNDS HILL-CLIMBING TROPHY.—Mr. F. Potts' winning 30-h.p. Daimler Car, driven by C. Grinham, at the start.

Henry Edmunds Hill-climbing Trophy.—Last week for the second time this trophy was contended for, and in this instance secured by a 30-h.p. Daimler, owned by Mr. F. A. Potts and driven by Mr. C. Grinham. As previously announced, Mr. Campbell Muir, who won the trophy in the first instance at Castlewellan, in Ireland, in 1903, did not enter to defend his title to the Cup, and the entry list, originally very meagre, amounting only to seven competitors, was reduced at the starting line to four only. This was unfortunate, as the hill

at Blackdown Park, Fernhurst, Sussex, which was courteously placed at the disposal of the Automobile Club by Mr. F. S. Philipson Stow, is an exceptionally good one for testing touring cars on a severe grade. Possibly the scarcity of entries and interest in the contest may be accounted for from the fact that no times are published by the club, and consequently little or no general interest can possibly accrue under the circumstances. The competitors who actually took part besides the winning Daimler, were Mr. F. R. S. Bircham's

Minerva ; 7, Mr. T. B. Browne, James and Browne ; 8, Mr. C. Harman Wigan, Vinot et Deguingand ; 9, Mr. D. Citroen, Minerva ; 10, Captain W. H. Bennett Dixi ; 11, Mr. Cyril C. Maudslay, Maudslay ; 12, Mr. John S. Napier, Arrol-Johnston ; 13, Mr. R. Dennis, Dennis ; 14, Mr. R. Dennis, Dennis ; 15, Mr. Harry Smith.

Maidenhead Dust Trials.—On page 1199 of our issue of September 30th dealing with this event, we erroneously described the car in the illustration in the centre of the page as representing "An Argyll Car coming up the Course." In reality, however, the car was a Clement belonging to Mr. J. F. Hawkins, the County Surveyor of Berkshire, who personally drove the car during the trials, and is taking very great interest in the experiments.

Brighton to Edinburgh Without Changing Gear.—Among the advantages of the 6-cylinder Napier car, a feature which renders it particularly attractive to those who know it, is that it can go practically anywhere on one speed—the top speed—without change of gear.

To demonstrate this Mr. Edge is arranging to make a test run from Brighton to Edinburgh on the 11th or 12th inst., in which he will prove that a 6-cylinder car can be driven the whole way on the top gear without any change. It is not to be imagined that the car will be

HENRY EDMUNDS HILL-CLIMBING TROPHY.—Mr. Huntley Walker's Darracq Car, which when near the summit at this Fernhurst climb, burst a tyre when going "all out" and crashed into a tree. The occupants fortunately escaped. As usual, the car has been widely reported as "completely smashed," a description which is somewhat belied by our photograph.

24-36-h.p. Itala ; Mr. S. N. Bankhart's 24-h.p. Rochet-Schneider, driven by Mr. Morgan Donne ; and Mr. A. Huntley Walker's 70-h.p. Darracq, driven by himself. Although the roads in the country were very heavy, the surface of the test hill was in good condition, and enabled Mr. Potts' Daimler to get up in good time, something under 2 minutes. The Itala car was next best in form, but unfortunately the Rochet-Schneider had pressure-feed trouble, and ultimately returned to the starting line for a second try. Mr. Huntley Walker's Darracq, when taking the acute corner towards the summit, burst a tyre, and after running over the grass, collided with a tree, damaging the car somewhat severely. Fortunately no harm came to either the driver or the passengers, although the latter left the tonneau somewhat hurriedly and without any effort on their own part, the mechanic having with remarkable agility jumped from the car when he saw the accident was inevitable. Mr. Huntley Walker, although shaken, does not appear to be any the worse for the mishap.

Tourist Trophy Race, 1906.—As a practical demonstration of the importance of this race and of the principles involved, already 15 entries have been received for next year's event. The regulations, in the meantime, will be carefully revised, and the lessons taught by the recent race as far as possible embodied. The entries so far announced are as follows: 1, Mr. John S. Napier (holder of trophy), Arrol-Johnston ; 2, Mr. A. Rawlinson, Darracq ; 3, Mr. A. Rawlinson, Darracq ; 4, Hon. C. S. Rolls, Rolls-Royce ; 5, Hon. C. S. Rolls, Rolls-Royce ; 6, Hon. C. S. Rolls,

VANDERBILT CUP RACE.—The 40-h.p. White Steam Racer, which was driven by Mr. Walter C. White in the American Eliminating Trials. Mr. Walter White is at the steering wheel. This special road racer, which has a very long wheel-base, has the main-frame hung beneath the axles, and the entire build is unusually low. Behind the driver's seat the supply tanks are fixed well above the axle, and in front is the "engine-room" forming the aft portion of the huge bonnet; the forward part of the bonnet has vertical finned tubes around the sides and front to constitute the condenser. All the control levers and pedals are on the left side—where the driver sits—but an emergency hand-brake is fitted outside, on the right, to be operated by the mechanician.

VANDERBILT CUP RACE.—The American Eliminating Trials. Bert Dingley on Mr. A. L. Pope's 60-h.p. Pope-Toledo, finishing in the race. Dingley was the first to complete the full course, his time being 2 hrs. 50 secs. for the 113½ miles.

provided with specially low gear for the occasion. On the contrary, it will maintain a good average touring speed within the legal limit throughout the run, and timekeepers will observe and note from start to finish of the run what the average speed actually attained is.

The route from Brighton to Edinburgh will be through Handcross, Croydon, London, Hatfield, Stevenage, Biggleswade, Stamford, Newark, and Doncaster, where the car will stop on Wednesday night, and then straight through Darlington, Durham, Newcastle, and Berwick to Edinburgh. The car, which will be driven by Mr. Cecil Edge, will start every morning at 6 o'clock and run to a time schedule of a little under 20 miles per hour, and immediately prior to the long journey it will be run at its best speed at Brighton, after which it will be driven straight away without any alteration whatsoever.

THE drivers of Herr Jellineck's three Mercedes in the race on October 14th on behalf of Germany, will be Messrs. Foxhall Keene, Jenatzy, and Warden. Jenatzy starts No. 1 in the race.

THE multiplicity of contests throughout America has resulted in a suggestion that there should be an arrangement whereby competitions generally should be abandoned, and that a series of twelve "America" trophies should be established by the chief governing bodies, to be divided equally between speed, touring, and commercial vehicles, the classification in each of these classes being determined by cylinder capacity, combined with weight of vehicle, and, in the case of commercial vehicles, the load carried. The American Automobile Association are named as the managers of this series of contests.

VANDERBILT CUP RACE.—Mr. H. S. Houpt's 60-h.p. Thomas Car, which was driven by M. Roberts in the American Eliminating Trials, and made the fourth best time of 2h. 29m. 40s.

Chateau Thierry Hill-Climb.—For the fourth year in succession this famous hill-climb was successfully carried out on Sunday last under the auspices, as usual, of *L'Auto*. Some alteration in the severe bends on the hill had this year been made, so as to enable the racing cars to participate in the event with safety, as well as in the Gaillon Climb on October 15th. Last year, owing to the high speeds which had been attained by racing cars, it was not deemed prudent to let any of the monsters take part in the race, they being confined to the Gaillon Hill-Climb, whilst tourist vehicles only ascended Chateau Thierry. Even after the alterations this year, it was deemed necessary at the last minute, owing to the state of the road, to time the racing cars over the standing kilometre only, thereby avoiding the dangerous turn which would otherwise have had to be taken at high speed, if the standing mile had been timed as originally proposed.

The only cars which were timed over the mile were the small fry in the Tourist class, ranging from 8,000 francs downwards, and the heavy vehicle section. Two new classes were introduced this year, viz., the class just mentioned for wagons and omnibuses, and another for tricars. In the former the best time was made by the Automoto wagon, of 9 min. 3 $\frac{2}{3}$ secs., whilst in the latter, M. Riviere, who took part in the recent Auto-Cycle Club's Reliability Trial in England, again driving a Mototri Contal, made the remarkably fine time of 1 min. 17 $\frac{3}{4}$ secs. The sensation of the meeting was, of course, the magnificent victory for Great Britain, secured by Mr. Clifford Earp, driving the now famous 6-cylinder Napier. It will be remembered that last year on Gaillon Hill-Climb the Napier firm gave a fore-taste of what they were likely to achieve with their new racer by running up the pick of the Continental vehicles so closely that a note of alarm was sounded throughout the French motor Press as to the probability of a British car ousting

the French vehicles from their record-holding position. At the time the Napier car had been completed only in time to enable it to get to the scene of action, and the consequently record work of this 6-cylinder car in America and Great Britain since fully justified the expectation which has now been realised of Mr. Edge's Napier car taking the lead on the Continent. We shall hope to see Mr. Clifford Earp repeat his triumph at Gaillon on the 15th, when we trust to see many of the crack racing machines in line with him, so that his success may be the greater to record, whilst we are hopeful of a further triumph for him in the meantime at Dourdan to-morrow, Sunday.

The times for the racers were only taken over the standing kilometre, as also for the tourist cars, from 25,000 francs down to 8,000 francs; the standing mile was the distance for the next two classes, whilst the flying

mile was reserved for motor bicycles and heavy vehicles. Altogether seven previous records for this hill were lowered, some of them very badly, notably Mr. Clifford Earp, on the 6-cylinder Napier, bringing Rigolly's 45½ secs. for the standing kilometre down to 38½ secs.

Racers (Standing Kilom.).

Heavy Cars, under 1,000 kilogs.—1. Clifford Earp, (6-cylinder Napier, Dunlop tyres), 38½s.; 2. Stead (Mercedes), 39½s.; 3. Faure (Mercedes), 46½s.; 4. Pierron (Mors), 53½s.; 5. Lapertot (Automoto) 1m. 7½s. Previous record: Rigolly 45½s.

Light Cars under 650 kilogs.—1. Hanriot (Darracq, Michelin tyres), 41½s. Previous record: Danjean, 50½s.

Voiturettes (under 400 kilogs.).—1. De la Touloubre (Darracq, Michelin tyres), 53½s.

Motor Bicycles (under 50 kilogs.).—1. Anzani (Alcyon), 55½s. Previous record: Lamberjack, 55½s.

Tri-Cars (½-litre).—1. Riviere (Moto-Tri Contal), 1m. 17½s.

Tourist Cars (over the Standing Kilom.).

CLASS I.—Over 25,000 francs.—1. A. Gardanne (Panhard - Levassor, Michelin tyres), 55½s.; 2. Graves (Mercedes Simplex), 1m. 0½s. Previous record: Gabriel, 56½s.

CLASS II.—18,000 to 25,000 francs.—1. Gasté (Radia, Michelin tyres), 1m. 4½s.; 2. Pelzer (Serpellet), 1m. 18½s.; 3. Quillard (Rochet - Schneider), 1m. 25½s. Previous record: Caillois, 1m. 32½s.

CLASS III.—15,000 to 18,000 francs.—1. Lemgruber (Fiat, Michelin tyres), 1m. 7½s.; 2. Marnia (Radia), 1m. 15½s.; 3. Gasté (Radia), 1m. 21½s.

CLASS IV.—12,000 to 15,000 francs.—1. Giry (Svelte), 1m. 40½s.; 2. De Salvert (De Salvert), 1m. 42½s.; 3. Ouzou (Florentia), 1m. 43½s.

CLASS V.—8,000 to 12,000 francs.—1. Chanliaud (Serpellet), 1m. 13½s.; 2. Baras (X.), 1m. 18½s.; 3. Deguingand (Vinot-Deguingand), 1m. 22½s. Previous record: Pelzer, 1m. 15½s.

Tri-Cars.

1. Vandelet (Stimula), 1m. 31s

Over the Standing Mile.

4,000 to 8,000 francs.—1. Delaunay (Boyer), 3m. 25½s.; 2. Demmer (Boyer), 3m. 39½s.; 3. Mionnet (Serpellet), 4m. 7½s.

Under 4,000 francs.—1. Gachet (Boyer), 5m. 30½s.; 2. Bailleau (Bailleau), 5m. 40½s.

Over the Flying Mile.

Motor Bicycles (½-litre).

1. Giuppone (Peugeot), 1m. 40½s.; 2. Anzani (Alcyon), 1m. 49½s.; 3. Contant (Quentin), 1m. 49½s. Previous record: Collomb (standing), 1m. 43½s.

Heavy Vehicles.

Ariès (wagon, 4,610 kilogs.), 17m. 20s.; Automoto (wagon, 1,220 kilogs.), 9m. 3½s.; Brillié (wagon, 8,270 kilogs.), 17m. 53½s.; Brillié (omnibus), 14m. 42½s.; Krieger (omnibus, 4,380 kilogs.), 17m. 3½s.

A COMPETITION for radiators is to be held in Paris during the present winter under the auspices of *L'Auto*, and it is hoped with the assistance of the A.C. de France.

THE competition for speed indicators in Germany arranged jointly by the Mitteleuropaischer Motorwagen-Verein and the Prussian Ministry, has been postponed until March 31st next year, the conditions remaining unaltered. This contest, being officially recognised by the Government, and likely, therefore, to have a far-reaching effect upon any selected instrument, should commend itself to the notice of English makers. All information can be obtained on application to the Secretary, Berlin W, 9, Linkstrasse 24, I.

MOTOR BOATING.

BURNHAM-ON-CROUCH MOTOR BOAT MEETING.—Burnham-on-Crouch from the sea and the Quay at Burnham. The Burnham Yacht Club may be distinguished by the bunting flying.

Burnham Meeting.—During three days of the last week of September, the British Motor Boat Club, by way of winding up the season, held an interesting race meeting at Burnham-on-Crouch. On the first day (Thursday, September 28th), the programme contained entries for a race for 40 ft., 35 ft., and 25 ft. boats, as well as another race for *bona fide* sea-going cruisers. In the 40 ft. class, over a 30-mile course, the Hon. J. Scott Montagu and Mr. Lionel de Rothschild's Napier II. won the *Motorist and Traveller* Cup in 1h. 36m. 16½s., Lord Howard de Walden's Napier being second in 1h. 58m. 31s. In the 35 ft. class, the 20-mile race was won by Mr. Mawdsley Brooke's Baby II., in 2h. 2m. 14½s.; Mr. Peyman's Pallas did not make good

time in this event owing to engine trouble, and she came in about twenty minutes after Baby II. In the 25 ft. class there were four entries, including the Sultan of Johore's Iblis, which attracted considerable attention. Mr. J. Stirling's Elgiva came home first in 1h. 31m. 16½s. for the 14 miles, but Mr. Miall Green's Takumono was the winner under the handicap allowance of 15m. 13s. Iblis was allowed 16m. 19s., and took 1h. 49m. 39½s. for the course. In the sea-going cruiser handicap Mr. A. Westmacott's St. Helena won the event, and Mr. S. F. Edge's Napier Major was second, by their handicap allowances, although Mr. H. Norfolk's Comet made the fastest time of 2h. 2m. 33½s. for the 17 miles.

BURNHAM-ON-CROUCH MOTOR BOAT MEETING.—“Napier II.” making a flying start.

Friday's racing was continued under the same favourable weather conditions as prevailed on the Thursday. In the 40 ft. handicap, Napier II. was again successful, accomplishing the 30 miles in 1h. 47m. 47 $\frac{2}{3}$ s., Napier being second, with the running time of 1h. 59m. 52s. The next handicap was for 30 ft. boats over a 20-mile course, and in this event Mr. A. G. Fentiman's Javelin was victorious, with the running time of 2h. 13m. 29 $\frac{3}{8}$ s.,

The principal day of the meeting was the last (Saturday), when the “flying mile” championship was on the programme. Only two competitors started, and, for the third time at this meeting, Napier II. was victorious, although her time for the knot, of 2m. 15 $\frac{3}{8}$ s., does not count as a record, as it was made only in one direction, and that with the tide. Napier, the only other competitor, ran over the same course in 2m. 58 $\frac{1}{8}$ s.

BURNHAM-ON-CROUCH MOTOR BOAT MEETING.—“Napier” passing the Committee boat, with a flying start.

Baby II. being second, in 2h. 14m. 24s. actual time. The 25-ft. handicap results are:—

Distance—14 miles.		Actual Time.		Handicap Allowance.	
		h. m. s.		m. s.	
1. Mr. Miall Green's Takumono ...	...	1 41 49 $\frac{1}{2}$	...	12 25	
2. Sultan of Johore's Iblis ...	...	2 3 44 $\frac{1}{2}$	...	24 22	
3. Mr. L. Miles' Stirling ...	...	1 53 14 $\frac{1}{2}$	...	10 12	
4. Mr. J. E. Matthew's Maya ...	...	2 42 50	...	34 40	

In the 30 ft. handicap, Baby II. covered the 14-mile course in 1h. 15m. 36 $\frac{3}{8}$ s., and won the event from scratch. With their handicap allowances Iblis took second place in 1h. 43m. 49s., and Javelin third in 1h. 22m. 28 $\frac{3}{8}$ s.

In the 40 ft. handicap, Napier II. unfortunately broke down, and Napier won the event by completing the 30-mile course in 1h. 43m. 54 $\frac{1}{8}$ s.

BURNHAM-ON-CROUCH MOTOR BOAT MEETING.—“Baby Brooke” crosses the starting line.

The Committee boat. As seen from "Napier Major." Capt. Evans, who was in charge of this boat in its recent lengthy voyage round the coast, is standing on the left.

Interested spectators on "Napier Major" and the Committee boat.

BURNHAM-ON-CROUCH MOTOR BOAT MEETING.

THE Admiralty continues to bestow attention on the application of the motor boat to naval purposes. The Dreadnought is to be fitted with motor-propelled packet boats, in place of the usual steam pinnaces. Estimates have been obtained for two 50-ft. motor launches for the vessel, which it is expected will prove more economical than the steam pinnaces hitherto employed. The Admiralty are conducting further experiments by replacing the engine of a steam launch by an internal combustion motor, with a view to ascertaining the suitability and reliability of engines of this kind in rough weather. The Admiralty will, no doubt, seriously consider the replacement of steam pinnaces by motor-driven boats throughout the navy, should their experiments warrant the change.

MOST people who are interested in motor boating will recollect the contention of Madame Du Gast that she was entitled to the Mediterranean Cup, as her boat got nearer to the goal than any of the others *before it had to be abandoned*. A similar claim has now been put forward by a humorous French journalist on behalf of the Mercedes boat, which took part in the race, on the following somewhat novel ground:—Recent soundings have established that of all the boats which went down in that unfortunate race, the Mercedes lies much the deepest, being, it is stated, 1,850 metres below the surface, the next best in this particular line being only 1,600 metres down. Therefore, Mercedes, it is claimed, reached the farthest point!

Mr. R. B. Robinson, the secretary of the Motor Yacht Club, watching the races.

Mr. Robinson and the officers recording the performances.

BURNHAM-ON-CROUCH MOTOR BOAT MEETING.



HITHERTO there have been hotel proprietors who have not been altogether in favour of automobilists as guests, but prejudice of this description is diminishing, and the motor-car traveller is now universally being welcomed and treated with consideration and confidence. A good example of this is provided by the experiences of an American automobilist who had come over from France and had nothing but French bills in his possession, and without thinking about the matter, found that he was unable either to buy petrol or pay his hotel bill. He

made this discovery at the Royal Star Hotel, Maidstone, where the landlord not only agreed to lend him what money he required, but refused to listen to the suggestion that he should retain the French bills as security until the amount could be returned. It is some evidence at any rate of the general character for honourable reliability which motorists are establishing in this country, and it is certainly an occurrence which should induce all motor-car owners to hold the Royal Star Hotel, of Maidstone, in special favour for the future.

MOTOR CYCLING.

Auto-Cycle Club Race Meeting.—At the Crystal Palace track on Saturday afternoon several enthusiastic racing motor cyclists competed in what is the only track event of the year solely confined to their particular sport. There were three principal items on the programme, and also what might be called an "extra turn" by Mr. G. A. Barnes, who gave a 2-mile exhibition ride on his 4-h.p. racer, which was too big to be entered for any of the other events.

The first of the contests was for the AUTOMOTOR JOURNAL Cup, which is held by the rider making the fastest time for the flying mile. It is a humane but exceptionally monotonous type of event, for each competitor was despatched separately, and his performance—except where varied by faulty ignition or the discovery that the petrol tap was turned off—was entirely devoid of spectacular interest. In this event H. V. Colver secured first place with 1m. 11s. for the mile, this being 4 secs. better than C. R. Collier's time of last year.

A five miles handicap, run in heats, for the *Motor Car Journal* Challenge Cup was the next item, and this proved a more exciting event. Each heat made a good race, H. V. Colver, Rene Thomas, and W. Hodgkinson proving the respective winners. In the final, W. Hodgkinson, with 7 secs. start, won the event. Rene Thomas, the French rider who recently made record times in Paris on an Alcyon machine, a similar make of bicycle to the one he rode on Saturday, was second after starting from scratch.

The One-Hour Scratch Race for the *Motor Cycle* Challenge Cup was principally remarkable for the continued excellence of Thomas' performance, who covered 45 miles in the hour—a distance of over two miles in excess of the previous best on that track. In the first thirty minutes he covered 22½ miles, 30 miles were finished in 40m. 2s., and 40 miles in 53m. 17½s.

From very few points of view could the meeting be called particularly interesting—towards the end it was decidedly slow, and it is little wonder that the long-suffering spectators grew impatient waiting in the chill wind on such a dull day. Happily, however, the track was not spoilt as it was last year, by a downfall of rain, for, although threatening, the weather was not actually wet. Under the direction of Mr. H. Godfrey, the Crystal Palace Military Band performed in the ring during the afternoon. According to the programme, they presumably played an attractive series of selections; but, unfortunately, their efforts to please were rendered entirely futile by the unceasing noise of the machines, and it was absolutely impossible to hear a note—yet they gallantly went on playing!

The following is a tabulated list of results:—

Flying Mile.—AUTOMOTOR JOURNAL CUP.

m. s.		m. s.	
H. V. Colver (Matchless)	1 11	C. R. Collier (Matchless)	1 17½
W. Hodgkinson (J. A. P.)	1 12½	E. Varney (Crownfield)	1 17½
W. W. Genn (Minerva)	1 15	C. Read (New Century)	1 21½

Five Miles Handicap.—MOTOR CAR JOURNAL CUP.

Heat 1.—H. V. Colver (Minerva) (5 secs. start), 6m. 27s.

Heat 2.—Rene Thomas (Alcyon) (scratch), 6m. 17½s.

Heat 3.—W. Hodgkinson (J. A. P.) (7 secs. start), 6m. 23½s.

Final.—1st, W. Hodgkinson (J. A. P.) (7 secs. start), 6m. 9½s.; 2nd, Rene Thomas (Alcyon) (scratch), 6m. 7½s.

Note:—Net running times only are given above.

One Hour Scratch Race.—MOTOR CYCLE CHALLENGE CUP.

1st, Rene Thomas (Alcyon), 45 miles 146 yds; 2nd, J. F. Crundal (Humber), 41 miles 1,376 yds.; 3rd, H. V. Colver (Matchless), 40 miles 400 yds.



Law as she is Expounded.—We have often wondered what might be the mental diet with which Petty Sessional magistrates regaled themselves, and which was accordingly responsible for the noteworthy decisions at which they arrive. Now we have solved the problem, at any rate in part. There is a periodical entitled *The Justice of the Peace*, and presumably it is published for and read by the confraternity of the Great Unpaid. The current number devotes an article to the subject of "The Motorist and the Law," and from this we learn:—

It must be clearly understood that the basis of the rights and duties of the motorist and the public with regard to the user of the highway is to be sought in principles of the common law and not in the provisions of any statute.

Two Mile Exhibition Ride.

G. A. Barnes (4-h.p. Barnes), 1 mile in 1m. 8½s.; 2 miles in 2m. 18½s.

Portmarnock Speed Trials.—The last of the season's speed trials, under the auspices of the Dublin Centre of the Motor Cycle Union of Ireland, were brought to a successful issue on Saturday last. The meeting was at Portmarnock, where the sand was at its best, and a strong wind which came from the Malabede end, favoured the competitors, some of whom succeeded in reducing the record for the mile. The programme was made up of four events, the principal item being a one mile scratch open for the Wheatley Bowl, presented to the Irish Automobile Club by the firm of that name, and won by C. B. Franklin at the speed trials last year. A mile novice, a mile members' handicap, and a ten miles handicap made up the card. A committee, Messrs. T. W. Murphy, D. P. Robinson, and the hon. sec., G. Mague, arranged the handicaps. A. Parker was first to finish in the ten miles handicap, but was disqualified for pedalling beyond the fifty yards flag, and for not dismounting at each end of the course.

Results.

Mile (Novices).—1. T. C. Brown, 2-h.p. Sanspareil, 20 secs. start; 2. W. Jacques, 3-h.p. Alcyon (scratch). Winner's nett time, 1m. 49½ secs.

Mile (Members) Handicap.—Final:—1. A. Parker, 2½-h.p. Minerva, 25 secs. start; 2. S. Black, 2-h.p. Triumph, 35 secs. start; 3. W. Jacques, 3-h.p. Alcyon, 15 secs. start. Winner's nett time, 1m. 27½s (Irish record).

One Mile Scratch (Open), Wheatley Bowl.—Final:—1. C. B. Franklin (holder), 6-h.p. J.A.P.; 2. J. G. Drury, 3-h.p. Triumph. Won easily; time, 1m. 17½s. (Irish record).

Ten Miles (Members) Handicap.—1. C. G. H. Lewis, 2½-h.p. F.N., 2m. 20s. start, nett time, 19m. 2s.; 2. C. B. Franklin, 2½-h.p. F.N., scratch, nett time, 17m. 27s.; 3. H. Mooney, 2½-h.p. F.N.

Hydra Cup.—In regard to the question which arose in Paris as to Cissac being entitled to claim the Hydra Cup by reason of his having created new records for the 100 kiloms., it has been decided by the committee who interpret the rules of the Cup, that although his new times are recognised as world's records, the Cup is to be held by Thomas, as Cissac did not comply with the rules by giving the necessary notice of his intention to challenge for the Cup.

International Cup.—In regard to the suggestion made by the Motor Cyclists' Union of the Austrian A.C., that the machines should be weighed without their tyres in future for this contest, they now suggest that such weight, without tyres, should be fixed at 47 kilogs., this weight to include magneto. A second proposition made by Mr. Klement, of Laurin-Klement, is that only the weight of the motor should be fixed, the weight of the rest of the machine being naturally and necessarily regulated automatically by this method. These and other suggestions are to be considered by the International Congress, which will be held in Paris in December.

UNDER arrangements made by the Auto Cycle Club, members are now entitled to take their machines into France free of duty, on production of their card of membership.



The right of each member of the public to the uninterrupted user of the highway has been prescribed by no statute. It is an inherent right, the existence and recognition of which is, in all probability, coeval with the existence of the highways themselves.

If anyone will take the trouble to turn up the Highways Act of 1835 they will see that the rights of the public and of anybody driving vehicles on the high road are very clearly and distinctly defined by that statute. If this is the kind of thing that a periodical presumably designed for the enlightenment of our magistrates puts before them in regard to the motor car and vehicle question, the strange decisions at which they frequently arrive are not greatly to be wondered at.

Motor vans for commercial purposes are daily being brought more into requisition throughout the country. Messrs. De Dion-Bouton, for the past three years, have been themselves running one of their own vans in London in connection with their business. We give a photograph of this vehicle above, both of the van itself and one showing the remarkable holding capacity of the body, no less than 8 men being able to seat themselves inside. This space has mainly been secured by placing the motor under the seat of the driver, the cubic capacity being about 100 feet.

CLUBS AND ASSOCIATIONS.

Aero Club.—The meeting of the club at Reading to-day, Saturday, has been cancelled, and in place of this the committee have arranged an ascent at Pitmaston Park, Moor Green, Birmingham, in response to Sir John Holder's invitation. The ascent will take place at 1.30 p.m.

Automobile and Cycle Engineers' Institute.—The first ordinary meeting of the session 1905-6 will be held on October 26th at the Grand Hotel, Birmingham. At this meeting the president for the year, Mr. Alex. E. Tucker, F.I.C., will deliver his presidential address, which will take the form of a paper on "Vanadium Steel for Motor Construction."

Blackheath A.C.—The final run of the season takes place next Saturday, October 14th, when the outing will be to the Bull Hotel, Chislehurst. At this meeting-place, occasion will be taken to present the prizes which were won at the Hill Climb on July 8th, and at the Gymkhana on September 2nd, these functions being followed by an informal concert.

Nottinghamshire A.C.—Last week, in response to the invitation of Mr. F. A. Smith, about seventy members and friends drove over to Cole Orton Hall. The visit was one of those especially calculated to further the interests of the club from the social side, and the hospitable reception which the members received made a strong impression in this respect. Mr. Charles Hardy, the president of the club, voiced the feelings of the members in a very hearty vote of thanks to the host and hostess. This was seconded by Mr. Booth Grainger, the secretary, who reminded the members and their friends that the outing was the direct outcome of the abandonment of the Buxton meeting, which was cancelled as a protest against the magisterial decision in an alleged furious driving case.

West Surrey A.C.—The last meet of the season, and one of the best attended hitherto, took place on the 30th ult., at St. Mary's, Godalming, the residence of Mr. R. Buttemer, hon. secretary of the club, about 17 cars being present, with over 70 members and friends. Among the members were: Mr. Barker (Cupelle), Dr. Bryden (10-h.p. Argyll), Mr. R. Crothers (9-h.p. Darracq),

Col. Fairtlough (12-h.p. Darracq), Mr. Fletcher (20-h.p. Durkopp), Dr. Hall (9-h.p. Clement), Dr. Henderson (20-h.p. Dennis), Mr. Houghton, Mr. Ingram (15-h.p. C.G.V.), Major Matson (10-h.p. Renault), Mr. Ponsford (8-h.p. Clement), Mrs. Sartorius (Cadillac), Mr. Vogan (24-h.p. Simms-Welbeck), Mr. Warne, Mrs. Bullard (20-h.p. Dennis), Mrs. Williams and Mr. F. Williams (Martini), Mr. Wrigley (12-h.p. Clement), Mrs. Rideal (Benz), while the other guests included Lady Caroline Grenville, the Misses Hadaway, Col. and Mrs. Pollock, and Mrs. Keightley.

New Automobile Clubs.—A club is being formed for the county borough of York and district, including Malton and Scarborough, under the auspices of the Yorkshire A.C. and the Motor Union. Already an influential provisional committee has been formed.

In Essex steps have also been taken by the Motor Union to form a county club. On the provisional committee for this body the Earl of Warwick has consented to serve, and immediately a full and strong provisional committee has been got together, a meeting of the leading automobilists of the county will be convened by the Union at Chelmsford. Automobilists in the county of Essex should at once communicate with the secretary at 19, Down Street, Piccadilly, W.



Mercedes 1906 Innovations.—Referring to our article describing the new 70-h.p. Mercedes car—which is to be the 1906 edition of the well-known 60-h.p. model—the Speedwell Motor Company write pointing out that their cars also have the necessary provisions made for holding the starting-handle in a vertical position, when not in use. This useful arrangement, in one form or another, is, of course, by no means a novelty; the Speedwell cars have, we learn, had it for no less than three years, and we have, ourselves, often noticed it on other makes of vehicle as well. Being one of those minor details which are so much appreciated by all practical motorists, it will doubtless be adopted even more widely in the near future.

CORRESPONDENCE.

* * *The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.*

THE BUCKDEN POLICE TRAP.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—So much unfavourable notoriety has been attracted for some months past by the methods of the St. Neots county magistrates, that the annexed copy of a communication we have to-day addressed to their clerk may interest such of your readers as have been victimised by this glaringly unfair trap.

To avoid the necessity of complying with the requirements of the Act in relation to charges for exceeding the speed-limit under Section 9, the Head Constable of Huntingdonshire, acting under some understanding with the Bench (and we have good authority for saying this), has for some time made it his invariable practice to charge all motorists who fall into his clutches with driving to the public danger under Section 1. Conviction follows in each case with the consequent endorsement of the licence, and the object of the proposed appeal is to obtain a decision of the High Court on the important question whether magistrates are justified in convicting for driving to the public danger, without any evidence of actual or possible danger to the public beyond the statement of a couple of country policemen and a carefully-prompted village schoolboy that, in their opinion, the car was being driven at a dangerous speed within the meaning of Section 1.

The Legislature has seen fit to impose a speed limit with penalties for exceeding it, but it was not, we contend, the intention that a skilled and careful driver, with his car under perfect control, driving at the rate (accepting the police timing) of 21 miles an hour through a deserted village street in broad daylight, should be convicted on the far more serious charge of driving to the public danger.

Until, however, a ruling of the High Court is pronounced to this effect, the enlightened Solomons of St. Neots will doubtless continue, without discrimination, to penalise and endorse the licences of the most cautious and considerate drivers, against whom the only real recklessness that can be shown is that they have had the temerity to pass through the district at all.

Yours faithfully,
MELLOR AND CO.

September 27th.

[Enclosure.]

The Clerk to the Magistrates for the County of Huntingdon,
The Petty Sessional Court House, St. Neots.

SIR,—*Re* William Horace Robinson. In this case, in which, on Thursday last the 21st inst., the magistrates for the County of Huntingdon, on evidence which can only be described as farcical, convicted the above-named defendant, under Section I of the Motor Car Act, we are instructed to take the opinion of the High Court of Justice on the question of law, whether there was any evidence of public danger before the Bench, on which the conviction could be justified under the Section in question. In our opinion, there was an entire absence of any such evidence, and we have accordingly to apply, and do hereby apply, on behalf of the defendant, to the magistrates to state a special case for the opinion of the High Court, setting forth the facts of the case and the grounds on which the conviction is questioned. Should the magistrates refuse to do so, we have advised an application for a mandamus to compel them, as the case is one on which we feel strongly that a gross injustice has been committed.

We hope, however, that the magistrates will not think it necessary to require this additional expense to be incurred, seeing the general importance of the questions involved, and the excessive hardship already inflicted on this particular defendant, whose wage-earning capacity as a professional driver will be permanently reduced if the conviction is confirmed.

Please send us a copy of the depositions, for which we will pay the regular charge.

We are,
Yours faithfully,
(Signed) MELLOR AND CO.

September 27th.

BRAKES ON MOTOR CARS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—*Re* a useful but not often used brake on a motor car. The above heading refers to the very excellent natural brake that all motor cars possess, but which few cars are designed to use, or the drivers do not use, namely the engine itself with the ignition switched off.

I have been carefully carrying out some experiments in the past few months on my car, using it with the clutch only connected up

to the clutch-pedal, so that when I wished to put on the foot-brake, the foot-brake pedal only was used, and in no way interfered with the clutch-pedal, and again, if I wished to use the side-brake, this could be applied without disconnecting the clutch.

The result of so using my Napier car for the past few months has so completely converted me to this system that I thought it would be interesting to write to a large number of users of motor cars and hear what their opinion was; in most instances I have had replies, many of which show very great and careful consideration of the subject.

The nett result of the replies were 6 per cent. in favour of the clutch and foot-pedal brake being connected up together, so that when the foot-brake is put on the engine is disconnected, and the use of what seems to me a very useful and effective brake is thus lost.

Fifty-nine per cent. prefer to have the clutch entirely independent of either foot or hand-brake, and I think it is very interesting to note that such a large number as 59 per cent. should have departed of their own initiative from the ordinary manufacturing practice and found what I think is the best system.

The balance of 35 per cent. like the hand-brake to withdraw the clutch.

The matter is, I think, one of very great interest to automobilists and could with advantage be ventilated in your columns.

Even though the system of having both brakes disconnected from the clutch might occasionally cause inconvenience, I think myself that the great reduction of wear and tear on brake parts would more than compensate for any such slight inconvenience.

Yours truly,
S. F. EDGE.

September 27th.

GREAT BRITAIN AND AUTOMOBILES.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I am very pleased indeed to see from the leading article in your issue of September 30th that at last it is clearly recognised that Great Britain is the greatest automobile consumer in the world.

You may remember that I drew particular attention to this fact in a speech I made at a luncheon given by the Society of Motor Manufacturers and Traders in July, 1902, and again at a dinner at the Trocadero Restaurant on Friday, October 16th, 1903, besides, of course, many references in letters and articles from time to time in the Press.

I have had few supporters in this view that I have taken, but it is very gratifying to at last find that the French Press and the French industry have at last realised that Great Britain is the true centre of the automobile world. This may be unpleasant reading for some of the agents over here for French cars, who, properly from their point of view, have tried to belittle Great Britain and have held France up as everything that is perfect in automobilism, but Mr. George Prade in the French Press has clearly shown the true state of affairs, and there is no doubt that to-day with British cars holding the world's speed record, and the world's reliability test, besides their reputation for general excellence and workmanship which thousands of British users of British cars can testify to, the foreign manufacturer must very rapidly now see that his only market will shortly be in his own country. Then, as soon as the British manufacturers have been able to fill the home demand then will the time come for the exporting of British motor cars to all parts of the world, and by this time it will be purely on merit, no favour will be required.

Yours truly,
S. F. EDGE.

September 30th.

NON-SKID AND TYRE PROTECTION.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—It would appear from recent queries in the Press, and also from information which comes out in the course of business, that the non-skid is very much over-rated as a tyre preserver.

The chief objection to a non-skid is its frictional contact with, and, therefore, wear upon, the tread of the tyre. This objection is a serious one, as we happen to know from observations made to us by people who from time to time send to our repairs department covers badly chafed and worn through constant friction with the non-skids, which have been applied in permanent or detachable form. And in this connection we are rather of opinion that a detachable non-skid is infinitely less injurious to the tread of a tyre than one making a permanent fixture, inasmuch as the acid needed to make the latter firmly adhere is a serious source of decay. All

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Trusting that with your usual courtesy you will allow this letter to appear in your next issue,

Yours faithfully,
HARVEY FROST AND CO., LIMITED,
H. HARVEY FROST,
Managing Director.

Amongst the splendid trophies which have been secured on the Continent by the De Dietrich firm with their well-known cars, is the Pyrenees Cup for Touring Vehicles, which was recently won by them with a 40-h.p. car driven by Mr. Sorel, particulars of which event we recently recorded in our pages. We are enabled to give a reproduction above of this beautiful work of art. The Pyrenees competition, for which 80 cars started from Toulouse, it will be remembered, was over a distance of 1,385 kiloms., the major part of which included very severe hill-climbing.

Decorated motor cars are now generally a striking feature of carnivals and processions in aid of charities, &c. Recently a demonstration was arranged in connection with the Cottage Hospital at Bexley Heath, when one of the most admired vehicles in the whole procession was the above 12-h.p. Siddeley Car, which moreover succeeded in collecting the highest amount in aid of the Hospital's funds.

THERE is one class of the community, not motorists themselves, who are friendly to the automobile movement for a very peculiar reason. In old days the cyclist, no matter practically at what speed he rode, was the special victim of the policeman. He was haled before local benches of magistrates, principally at Reigate, and charged with furiously driving his rubber and iron steed. Since the advent of the motor car and the elaborate arrangements involved in the usual police trap there has been a "closed season" for cyclists, and it is quite unusual now to hear of their appearance on this charge at police courts. They recognise their indebtedness to the automobile, and, as one of them in a letter to the *Daily News* points out, "cyclists gratefully decline to offer serious opposition to the progress of motoring, which has delivered them from police persecution."

SOME two years ago we described how the Bishop of Milan was in the habit of carrying out his diocesan visitations per motor car, and how he was enabled in this way to cover a stretch of country which it would have been impossible even to tap but for this means of conveyance. The example of the Bishop of Milan is now, amongst other dignitaries of the

being followed by the Bishop of Liverpool, who is providing him with a 24-h.p. which he will in future circumnavigate top down on out-of-the-way rural deans, rectors when they least expect it. The tool is a great worker, and there is no automobile will enable him to do even more than he hitherto has done, and no parochial clergy will thoroughly enjoy the effect of being visited by their Bishop in meditation when they least anti-

NCH inventor claims that he has produced an appliance which will in future obviate necessity for motor car drivers improving their physiognomies with goggles, and will enable the public to admire what he is pleased to term the "coquettish harmony of feminine coiffures." The arrangement, however, is nothing very epoch-making. It consists of a transparent screen of glass or gelatine of the ordinary kind raised by special means about three feet above the bonnet, but brought much further back than usual, being connected to the top of the bonnet by leather or other flexible material. It would seem that this device must largely spoil the appearance of the car to which it is fitted, and we do think that the supposed advantages would adequately compensate for this.

Within the next six months, the Central Motor Car Company expect to place 200 motor cabs—similar to that shown above—in public service in the Metropolis, on behalf of the London Automobile Cab Company. Our photograph shows one which is now being driven in town by a London cabman, who, a couple of weeks ago, was plying his trade with an ordinary hansom. The "Ford" Cab is of the live-axle type, is propelled by a 20-h.p. four-cylinder vertical engine, and has a two-speed gear of the epicyclic variety. Amongst some of the special claims which are made for it are that it is quite silent, that no changing of speed is necessary under ordinary running conditions—since the speed can be varied from 4 to 30 miles per hour on the top gear—that the engine can be started from the seat ("on the switch"), and that the cab will turn right round in a 26 ft. 6 in. roadway; the wheel-base is 7 ft. 8 in., and the track 4 ft. 8 in. These self-propelled hackney carriages—which have a roomy landaulette type of body—are to be fitted with Taximeters.

MR. WILLIAM RICH has been appointed Lieutenant in the Motor Volunteer Corps.

A REMARKABLE accident happened recently at Lordship Park, when a motor tricar ran into the front wheel of a horse-drawn 'bus. The 'bus wheel was smashed

and so was that of the tricar, but the tricar propped the 'bus wheel up, and so nobody was hurt.

MR. CATHCART WASON, who we believe represents the Orkney Islands, will presumably be painfully affected by the intelligence that another motor omnibus has been landed at Kirkwall for public service in the Islands.

Railway motor coaches are now becoming extensively used throughout the country, and, as we have always anticipated, are proving extremely successful, and should result in substantial gains to the various companies who, in conjunction with road motor vehicles, are extending their traffic in this very up-to-date and useful direction. The above is one of the latest self-contained steam coaches, put on by the London and North-Western Railway Company on their North-Wales line between Prestatyn and Dyserth. The engine is enclosed within the body of the car, and the engine-bogie is specially constructed for carrying the engine and boiler in addition to one end of the car body. The latter is attached to the bogie by a cast-steel centre casting resting on the bogie bolster, and if at any time it is desired to remove the engine and boiler for repairs, it is only necessary to raise the engine end of the car sufficiently high to disengage the centre casting, so that the bogie with the engine and boiler can be drawn from under the car through the doors at the front end. Another bogie with engine and boiler complete can then be put in its place. In this way there is no necessity for the coach to be withdrawn from traffic on account of repairs to the engine. The weight of the entire carriage, when the tanks and boilers are full, is 43 tons 8 cwt. The wheels are 3 ft. 9 in. diameter on the tread. The engines can be worked from either end of the car, and the lighting is by electricity throughout. Electric bells are provided and also speaking tubes, so that the driver, fireman, and conductor are all in communication with one another. The passenger compartments are heated by a simple system.

ALL good motorists recognise that it is their duty to repress reckless driving and abuse of the high roads on the part of their colleagues, and Earl Russell is accordingly to be congratulated upon prosecuting an especially flagrant offender who, late one evening, careered along through the village of Cobham at, it was stated, at least 35 miles an hour, and in the most reckless manner. The offender was ultimately fined £10 and costs, and the Bench thanked Earl Russell for his action. It is this kind of reckless driving that should be stopped, and other motorists should attempt to stop it. They are better qualified for doing so than the police, for they are not likely to be prejudiced, and they are in a position to judge adequately of speed and reasonable driving.

No doubt Earl Russell acted with the best intentions and in the public interest, and was animated by the feeling which actuates every self-respecting motorist—detestation of that greatest enemy of the movement, the reckless driver. Lord Russell's position is to some extent exceptional, but in general perhaps it would be as well when other motorists desire to act in the same way—as we hope they will when a flagrant case of this kind comes

before their notice—if instead of acting independently, they would bring the matter before the Automobile Club and arrange for the proceedings to be undertaken by that body. We suggest this for the simple reason that the moral effect produced would be so very noticeably greater.

A NEW terror—to evil-doers—is about to be added to Paris in the shape of a corps of motoring policemen, which will consist of 200 members, and whose principal business it will be to see that no infringements of the law are perpetrated by automobilists and motor cyclists in the French capital. The 200 will constitute, it may well be said, a *corps d'élite*, as before they are admitted they will be subjected to a severe examination by an examiner, who will throw all sorts of obstacles (stuffed figures of old women, babies, and the like) in their way as they drive along, expecting them to dodge them with facility. In addition, the members of the corps are required to be expert mechanics. On the whole, however, the motorist will probably far prefer dealings with automobilist policemen than with the "magistrates' highwaymen," as Mr. Coleridge has dubbed them, such as we have in this country.

NEW COMPANIES REGISTERED.

[Taking powers to manufacture or deal in motors, motor cars, or accessories, either as their principal or part of their objects.]

Automobile Log Syndicate (Limited), 11, Queen Victoria Street, E.C.—Capital, £5,000 in £1 shares. Object, to adopt an agreement with H. Soar, and to acquire a certain invention.

Chassis (Limited), 4, Broad Street Place, E.C.—Capital, £5,000 in £1 shares. Object, to carry on the business of motor car, omnibus, &c., proprietors, manufacturers, and dealers, &c.

Gnome Motor Car Company (Limited), 66, Great Russell Street, W.C.—Capital, £5,000 in 4,750 ordinary shares of £1 each, and 5,000 deferred shares of 1s. each. First directors, Lewis J. Levi and Lionel J. Levi.

Laws Stores (Limited).—Capital, £2,000 in £1 shares. Object, to acquire the business carried on at 13, Liverpool Street, and 215, North Road, Preston, Lancashire, as Laws Cycle Stores, manufacturers, gasfitters, dealers in cycle and motor parts and accessories, gasfittings, &c. J. Law is first director.

New Arrol-Johnston Car Company (Limited), Underwood Road, Paisley.—Capital, £100,000 in £10 shares. First directors: W. Beardmore, J. Hunter, and J. S. Napier (Scotch Co.).

Newport (Mon.) Motor Supply and Garage (Limited), Cambrian Chambers, Cambrian Road, Newport, Mon.—Capital, £3,000 in £1 shares. First directors: J. M. Griffiths, E. M. Linton, C. D. Phillips, and P. Powell.

IN connection with the affairs of the Automobile Corporation, Limited, which were before the Court of Bankruptcy under the winding up order recently made against the company, it transpired at the meeting of creditors that the company formed in February,

1905, had a capital of £1,000 to carry on company promoting business, Mr. Edgar Antrobus Mackenzie being the vendor, promoter, and practically the only shareholder and debenture holder. The Corporation unsuccessfully attempted in April last to float the Herne Bay and Canterbury Motor Service Company, Limited, but the public in no way responded to the invitation. Other matters unconnected with automobilism were exploited, which have been the cause of the company's non-success, but the chief reason of failure is attributed to the collapse of the Herne Bay issue.

COMMERCIAL POINTS.

Harvey Frost and Co., Ltd., favoured by the War Office.—For some little time an H. F. Vulcaniser has been subjected to a variety of tests by the War Office, with a result most gratifying to the patentees and manufacturers, who have received a Government contract for an additional supply of H.F. Vulcanisers, including "Standards" and "Re-Treaders." The Chief Inspector of Mechanical Transport recently visited 39, Great Eastern Street, and witnessed a variety of demonstrations in tyre repairing by the H.F. process, and was so greatly struck by the high quality of work attained, and the high efficiency of the H.F. appliances generally, that he at once requested the firm to tender for an additional number of these machines. This mark of Government patronage is the more satisfactory for the fact that the H.F. appliances were fully tested by the War Office before the contract was given.

A GRAND PRIX has been awarded at the Liege Exhibition to the well-known "Sternol" brand of lubricating specialties for motor cars.

BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.L.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

21275. 4th October, 1904. A New or Improved Petroleum Engine. Robert O. Allsop, 37, Norfolk Street, Strand, London. This engine has two motor cylinders and one fuel vapour pump. The pump serves the two Otto cycle motor cylinders alternately with vapour of petroleum, and the petroleum may be more or less gasified by adiabatic air compression in the pump according to the setting and arrangement of the valves and valve-operating gear. The pump piston on its outstroke draws in a charge of hydrocarbon sprayed with air; on the instroke the charge is compressed, and at a suitable point in the instroke the opening of a valve allows the vapour or gaseous mixture to be discharged into

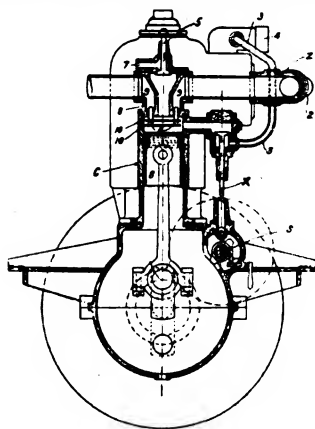
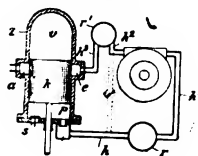


FIG. 2.

one or other of the motor cylinders. The crank pins of the two motor pistons work together, and the crank pin of the pump piston is set at 180 degrees relatively to the crank pins of the motor pistons. There are two figures. Fig. 2 is a section of the pump, which is placed between the two motor cylinders. C is the pump cylinder, bolted to the centre of the crank chamber. G is the pump piston. The "half-time" or "two-to-one" gear wheels communicate rotary motion to the side shaft, S, on which are placed the cams which by means of tappets operate the exhaust valves of the motor cylinders and the gas or vapour valves, X. Z is a

cored casting forming the vapour superheater; 2 is an exhaust pipe; 3, a gas or vapour pipe; 4, air inlets to motor cylinders; 5, inlet valve to pump; the petroleum passes through a small hole in seating of valve, and is sprayed by the rush of air through the air passage, 7. At 8 is shown a cored casting heated by the exhaust products passing through passages, 9. The cored casting has a heated cone on to which the petroleum is sprayed. Copper baffle-plates, 10 to 10, secured by copper studs, 11, are connected to the cored casting or vaporiser. The central cone or funnel-shaped portion of the cored casting or vaporiser forms part of the clearance space of the pump. The vaporiser connects, and is suitably bolted to the pump and pump inlet valve. The pump piston on its out or downward stroke draws in air and sprays petroleum on to the heated cone and baffle-plates. The charge of vapour and air is on the following upstroke of the pump piston delivered into one or other of the motor cylinders according to the setting of the valve-operating gear. September 13th, 1905.

Fig. 1.



24905. 15th November, 1904. Improvements in or relating to Explosion Engines and the transmission of power therefrom. Friedrich A. Haselwander, Rastatt, Baden, Germany. This invention relates to an air pressure transmission from the internal combustion engine through a compressor and air pressure motor to the road wheels. In two-stroke-cycle engines the compressing of the air is an essential point, and the engine, therefore, contains a compressor or is coupled to such a compressor in which the degree of compression need only be so far increased that an air pressure motor can be driven with a satisfactory degree of efficiency, and that then the expanded exhaust from the same may serve as the scavenging air for the two-stroke-cycle engine with higher compression of the scavenging air and of an air pressure motor, the latter serving as the equivalent for the change-speed driving gear, and, if necessary, for the differential device. There are two figures. Fig. 1 illustrates the arrangement diagrammatically. The usual cycle of operations in

a two-stroke-cycle engine takes place in the space, *v*, in cylinder, *s*, above the piston, *k*; the exhaust, takes place through *a*, and the inflow of scavenging air takes place through opening, *e*, both of which openings are controlled by the piston. In the lower part, *p*, of the cylinder the scavenging air is sucked in through the valve, *s*, the compression takes place in the cylinder, and the sufficiently highly compressed scavenging air is forced out through the valve, *s*, through the passage, *h*, to receiving chamber, *r*, passage, *h*, to air pressure motor, *m* (here a turbine motor or rotary motor), in which the scavenging air working as the pressure air becomes expanded, and then at a lower pressure sufficient for the scavenging of the cylinder of the two-stroke-cycle engine, passes through passage, *h*, receiver, *r*, and passage *h*, to the air inlet of the two-stroke-cycle cylinder. In the air pressure motor regulation may be effected by alterations in the admission or by throttling in front of or behind the motor. A bypass pipe, *h*, with a throttle, *d*, may be fitted to convey the air past the motor, *m*, and direct to the receiver, *r*, to supply the combustion in the engine. September 13th, 1905.

Patent Specifications Published.

Applied for in 1904.

Published October 5th, 1905.

- 20,743. J. WAKEFIELD. Propelling motor vehicles wherein the use of chains, belt, or gear-wheels is dispensed with.
- 21,899. H. H. FROST. Vulcanising apparatus.
- 23,054. J. DUNLOP AND KYNOCHE, LTD. Intl. combin. motors.
- 23,536. R. F. BROWNE. Rear lights.
- 24,504. W. H. AND W. DEE, AND F. J. EDGINGTON. Lamp.
- 24,691. C. F. KITE. Vulcanising apparatus.
- 25,088. J. POLLITT AND H. SMITH. Fuses.
- 25,212. MARTINI AND CO. Carburetors.
- 25,403. P. E. SURLAU. Spring forks.
- 25,902. EKSTROMER ACCUMULATOR CO., LTD., AND E. L. OPPERMANN. Secondary batteries.
- 28,961. G. ULIVI. Speed-regulating devices.

Applied for in 1905.

Published October 5th, 1905.

- 264. ECONOMIC SAFETY GAS CO., LTD., AND C. C. FOWLER. Carburetors.
- 539. HITCHON GEAR AND AUTOMOBILE CO., LTD. Motor road vehicles.
- 930. F. E. CAIRNES. Variable speed gearing.
- 2,831. H. LUCAS. Lamps.
- 6,196. BEVEY, PEACOCK, AND CO., AND H. A. HOV. Steering gear.

The Automotor Journal, October 14th, 1905.

THE AUTOMOTOR JOURNAL

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OCTOBER 14TH, 1905.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Oct. 14	... Scottish A.C. Anniversary Run (Ayr).
Oct. 21	... Passenger Motor Cycle Trials (Auto Cycle Club).
Nov. 10 or 17	*Quarterly 100 Miles Trials.
Nov. 17-25	... Society of Motor Manufacturers and Traders Exhibition at Olympia.

Foreign Events (Trials, Races, &c.).

1905.	
Oct. 14	... Vanderbilt Cup.
Oct. 15	... Gaillon Hill Climb.
Oct. 22	... Maisons-Laffitte Motor Boat Races (L'Auto).
Nov. 3	... French Voiturettes Trials (L'Auto).
1906.	
Jan. 26-30	... Calcutta Motor Trials.
April 1-15	... Monaco Motor Boat Exhibition and Races.

*Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

Much Misconception.

IN addition to his other admirable services to the automobile cause, Mr. Stenson Cooke, the secretary and protagonist of the Automobile Association, can lay claim to the *recherché* distinction of possessing a very fine sense of humour and a delicate pen with which to support it. One of the Surrey papers, representing presumably the interests which indirectly subsist on the fines raked in as the output of police traps, has been very angry with the arrangements which the Automobile Association has made by means of a corps of cyclists, scouts, and others, to keep motorists from breaking the law. Those good people who are infected with the anti-automobile *virus*, seem to regard it as quite a crime to warn motorists of unintentional excesses of speed when it so happens that policemen are ambushed on the roadside and ready to pounce. Mr. Stenson Cooke's reply on the question to the *Surrey Comet* is a model of the "retort courteous." So admirable, indeed, is this letter from every point of view that, though not directed to ourselves, we reproduce it in another column. Amongst the most telling points in regard to the whole situation which Mr. Cooke brings out are that the average motorist most obviously behave with decency, since, in order to catch him, the police have to set their traps on unfrequented roads, where there is no danger, and not near villages where there is; and that the object aimed at by the police is obviously to collect fines and not to protect the public, as the places where the most danger to the public exists are exactly the spots at which no traps are set.

An Extension of Activity Desirable.

ON the roads which it has taken under its protection, the Automobile Association is unquestionably deserving well of the motoring public, for no more admirable work in connection with the automobile movement can be done than preventing, by means of a carefully devised system, automobilists from unwittingly transgressing the law of the land, particularly when the "blue deep minion of the law" (as Kipling terms him) is hiding in one of his undignified ambushes with a view to catching the unwary. To this the activity of the Association is confined. These unintentional excesses of speed have led to so much ill-feeling, particularly where they have resulted in appearances before the police court, that as the Automobile Association succeeds in stopping them the final elimination of all bad feeling between members of the public and automobilists should be confidently anticipated.

Finances Needed.

"THERE are hills beyond Pentland, and lands beyond Forth." There are other roads besides the Portsmouth and Brighton roads on which similar objectionable tactics are employed by the reapers of fines. There is the celebrated trap in the neighbourhood of Andover, whose victims have to "hand-over" to Col. Harmar, and the other *croupiers* of the Bench, fines on a regular tariff, arranged, apparently, simply on the principle that if they plead guilty they pay £3, and if they defend themselves, £5 and upwards. There is Knaresborough, which has sprung into prominence with a notoriety that almost rivals Andover. And there are others. It is desirable that the same methods should be adopted of preventing unintentional breaches of the law by motorists in these districts also. But for this obviously an extension of the financial resources of the Association will be needed, and to obtain this, increased membership is the natural and proper method. In fact, there seems to be no reason why membership should not be sought for, and the moderate annual subscription paid by practically all the motorists in the United Kingdom. It would amount to one of the cheapest insurances, not merely against the danger of losing money in unjust and unreasonable fines, to which everyone of them is at present liable, but would also be an insurance against the petty persecution and the annoyance of having to attend in police courts and having their licences endorsed.

The Advent of Utopia.

A SCHEME of tremendous magnitude has recently been mooted—not for the first time—in the columns of the daily Press. We refer to the proposals which have been recently put forward for the construction (by means of company promotion, we presume) of a network of special roads designed only for high-speed automobile traffic, and on which only automobiles would be permitted to run. The project, which is at present associated with the name of Sir Douglas Fox, proposes that the roads should bridge the ordinary roads of the country where they cross them, so that no level crossings would be necessary, and no interference with the arrangements of ordinary traffic by the high-speed locomotion be possible, while the high-speed motor roads themselves would be divided down the middle, so that the chances of two vehicles meeting one another end on would be eliminated.

It is an attractive, not to say Utopian, scheme, and, had it not been previously suggested, would certainly lead the public to conclude that Sir Douglas Fox had been dining occasionally with Mr. H. G. Wells. In fact, we shall probably next hear that the new roads are to be paved with Mr. Wells' Eadhamite—one of those discoveries by which the period intervening between the present and Mr. Wells' Utopia is to be rendered famous. In fact, we have our doubts whether the scheme is a practical one. The enormous expenditure on the railways of the country was incurred owing to the possibility of the speculators who found the money being ultimately able to get it back. They, received as an inducement to incur the risk they ran, complete monopoly of the roads they constructed. It is difficult to see how a similar paying monopoly could be created for the very adventurous speculators, if such there be, who embark on the automobile road project. We do not say it is impossible, but we do not see how it is to be done. The moment anything like a considerable fee is charged for the use of the roads by motor cars, all but speed maniacs would continue on the ordinary roads. Of course it would be possible for the road constructors to run automobile services of their own just as the railway companies do trains, and it is just possible that in certain places, and under certain conditions, such a service here and there might be made to pay. But that is not the project. Its commercial aspects, as it actually stands, seem to us at least problematic.

Doubtful Policy.

FROM one point of view we rather regret to find this separate road project being seriously advocated. The Automobile Club, the Motor Union, the Roads Improvement Association, and everyone interested, not merely in the automobile movement, but the future development of the country, are anxious to see both the construction of the roads we at present possess, and their administration, reformed from top to bottom, so as to render them somewhat more suited to modern requirements. Much of the driving force behind this movement will be paralysed if a notion is to gain ground that sooner or later automobilists will have their own roads. In addition, the proposal almost amounts to a recognition that our roads are only designed for horse traffic, and that automobiles are interlopers upon them. It has often been pointed out that our road network, as we have it to-day, is practically the same as it was a hundred years ago. There are but too many reactionaries who wish to see the amount of national traffic restrained by the existing roads rather than as the progress of the country demands that the roads of the nation should be expanded to fit the requirements of growing traffic.

There is another aspect of the situation. Gradually, by more or less drastic methods, the Automobile Club is eliminating the reckless driver, and by so doing improving the general feeling between motorists and other road users. The appearance on the scene of a scheme advocating that motorists are to be provided with roads of their own by private enterprise does not exactly amount, perhaps, to a repudiation of their right to the ordinary high roads, but it would certainly be used by opponents as an argument to show that automobilists are recognising that their vehicles are too dangerous to be allowed to continue permanently in use on ordinary high roads. This would certainly create a very serious situation.

Already Bearing Fruit.

THAT the anti-automobile Press will not be slow to adopt the attitude referred to above, is pretty clearly shown by the appearance of the following observations in a leading morning paper, which has been generally conspicuous for its hostility to the movement:—

MOTOR CAR ROADS.

The suggestion is made that special roads should be built by the public for the convenience of the owners of motor cars! Let the public carefully note what this really means. (1) It is impossible for a motor car to be maintained by a man with an income of less than, say, £750 per annum. (2) There are not more than 250,000 persons in the United Kingdom with incomes of £750 and upwards. (3) The population of the United Kingdom is 43,000,000.

Ergo, the construction of motor car roads would be a special provision out of public funds for the rich.

The Car Ecclesiastical.

A NOTABLE feature of the meeting of the Church Congress this year was the amount of attention bestowed on the topic of automobilism. It was natural enough, of course, after the departure made by the Bishop of Liverpool in adopting a motor car presented to him by some of his admirers, to which we referred last week. Next to the medical profession it is probably the clergy who, as a professional body, find themselves compelled more than any other class of the community to cover considerable distances in all kinds of weather.

"Wide was his parish and houses far asunder,
But he ne left nought for no rain ne thunder."

as Chaucer says of his parish priest. To the parochial clergyman certainly the motor car is coming, if not as a revelation from on high, at any rate, as a means of escaping many a slough of despond and discomfort here below, looming large amongst which may be mentioned the abominable difficulties of getting from one point to another by cross-country railways even where the places are thus connected. At present the opinion seems to be that the ecclesiastical motor car should be the outward and visible sign of the bishop, and perhaps the bishops have greater occasions for its use, but there is no doubt that what is the bishop's to-day will be the country rector's to-morrow, and when every country clergyman has a motor car of his own he will be undoubtedly a happier and a healthier man.

Another Abuse of Executive.

It would seem that a new form of police trap, and one in some respects more objectionable than any that have preceded it, has recently been invented. Instead of the measured furlong (or other distance) with which we are familiar, with a constable (disguised and with a stop-watch) at one end, and a constable in uniform to stop the car at the other, two constables take up their positions at a greater distance apart, say three miles, each with watches which they have previously synchronised as well as they can. The first policeman takes the number of every car passing him, and the second one holds up his hand and stops each car, pointing out to the driver that it is such and such an hour, that he has been timed over the last three miles, and that if his speed is found to have been excessive he will be summoned. We are not yet aware that any cases founded on such evidence as this have been decided, and even Andover or Horsham magistrates might hesitate to convict upon it, for it is so obvious that a little subsequent or previous adjustment of notebooks or stopwatches could make out nearly every car to be an

offender. But the point on which we object and to which the Automobile Club or the Motor Union ought, we think, to take decided action by addressing joint committees, Chief Constables, or otherwise, is that stopping cars unless they are known to have committed an offence, and merely on the chance of their having done so in this manner, is a gross abuse of the executive functions of the police. A policeman has no right whatever to stop a car unless he can charge the driver with having infringed the Act and honestly believes him to have done so. Needless to say, however, the whole business is merely of a piece with other proceedings of the same kind which have elicited not unnaturally the expressions of indignation to which we refer elsewhere. These tactics, however, are so utterly unwarranted by the law that we think Chief Constables would probably order them to be discontinued if approached by the representative bodies we have named.

The Apotheosis of the Horse.

WHEN all has been said, both by his unwise detractors and by his sometimes equally unwise admirers, the horse, at any rate, when well bred, remains a highly intellectual animal. To employ intellect for mere drudgery is to waste the resources of the community, and every really progressive soul will therefore rejoice to hear, on the authority of Mr. Hunting, who delivered the opening address of the annual meeting of the Royal College of Veterinary Surgeons, to which we referred last week, that 20,000 horses have already been displaced by electric trams, and that this process still continues. Mr. Hunting does not think that the motor has as yet made any appreciable inroad upon horse slavery, but on that point we respectfully beg to differ. There are now quite a number of motor 'buses at work in the Metropolis alone, and a further considerable number in the provincial towns and on country routes, while their number is increasing as rapidly as manufacturers can supply the demand. Each horse 'bus that is displaced by a motor 'bus represents the emancipation of from ten to twelve horses. Possibly the horses at present thrown out of work will feel the pinch, but the effect of motor vehicle development can, as we have always insisted, in the long run only mean the setting free of horses in general from the worst of drudgery, and their dedication to the pursuits of hunting, steeplechasing and racing—for which they are pre-eminently suited, and in which they feel a personal interest and enjoyment instead. In fact, as far as the effect of the motor industry upon the horse is concerned, it will ultimately mean a smaller number of very much happier horses, and such a consummation is one for which the real horse-lover will be devoutly thankful.

THE Douglas Corporation have declined to license motor 'buses to ply as stage coaches along the Marine Promenade. The main reason no doubt governing this decision is that the Corporation are the owners of the horse trams along the sea front, the public therefore have to put up with the usual inefficient service resulting from monopoly. This is a good instance of the mistake of corporations running trading ventures of this nature, as not unnaturally the authorities are not very keen to grant permission for a competing service, and thereby render the investment of the ratepayers' money a dubious speculation.

THE 1905 ARGYLL CARS.—PART I.

A VERY special interest now attaches to the Argyll vehicles in view of the enormous scale on which they are in future to be turned out, for it is certain that they will shortly become one of the most familiar—if not the most familiar—of any one make of car on the roads in this country, and that they are destined to be immensely popular with those who require a good, serviceable, and inexpensive British car. Even at the manufacturers' old works in Glasgow, the output has in the past been very large, for, in spite of the difficulties that have necessarily been encountered when constantly extending the equipment of works originally laid down on a comparatively small scale for other work, the old shops at Bridgeton have been rendered remarkably efficient by good management, and have always been kept thoroughly up to date in the way of machine tools. In them, practically every portion of the cars has been turned out from raw materials on the premises, and all improvements in auto-

own works. When it is considered that all the bodies have also been turned out in the Bridgeton factory, it is little short of surprising to learn, after seeing over the old premises, that twenty cars a week were being turned out, as was the case at the time of our visit. It is brought home to one, then, that the demand for Argyll cars must have grown in a phenomenal manner—which could only result from real merits—and, even more forcibly, one is compelled to realise that Mr. Alec Govan—the controlling practical spirit of the concern—possesses extraordinary powers as an organiser.

What will-be Done in the Future.

What has been done in the past, under much less favourable circumstances, renders it possible for one to form some idea as to what will be done in the future. Hitherto, as we have said, the Argyll Company have succeeded in turning out cars which have given great

The 24-h.p. Argyll Landaulette, as an open carriage.

mobile workshop practice have been absorbed as they have come along. During a visit which we paid to these works in the summer, for instance, we could not help being particularly struck by the large percentage of entirely new tools in the machine shop; evidently no out-of-date machinery was allowed to remain there long, and clearly the management understood that only with such an installation for ensuring accuracy of workmanship, as well as interchangeability of parts, could the great advantages of using only the highest grades of materials, and of hardening and grinding all important machined surfaces, be realised to the full.

What has been Done in the Past.

It is true that hitherto it has not been possible for the company to build all the engines which they have fitted to their cars, and that they have employed the well-known Aster make of engine on certain types, but apart from that fact, it is true that all Argyll vehicles have been built from first to last in the firm's

satisfaction to customers, but the demand thus created has exceeded the productive powers at their disposal, with an obvious two-fold result—firstly, that they could no longer benefit to the full from the reputation that had been established, and secondly, that comparatively little advantage could be taken of a largely increased possible output to cheapen the cost, and to improve the processes of production in the way that it might be made to do.

Now, however, all this is being changed, and the necessary steps have been taken for enabling the Argyll cars to be turned out in very large quantities from a huge factory near Glasgow laid out expressly for the purpose, and equipped with the most suitable plant. The new works at Alexandria, which cover 12½ of the 60 acres acquired by the company, are rapidly approaching completion, and a part of them—the 2½ acre machine shop—is already in full swing. They form a remarkable institution, and will be quite *the* show-place for motorists, even in that remarkable engineering district, for they have

been planned out, regardless of prime cost, on the lines of all that is most efficient in the largest and most up-to-date workshops of the world. The company—"Argyll Motors, Limited"—have, in fact, made a bid to be one of the largest builders of petrol cars in existence, and have started out with the full determination of ranking second to none as a purely manufacturing motor car concern.

A Word about the New Works.

Of the new works themselves—which we recently inspected—much, indeed, might be said, but we are chiefly concerned in this article with the cars that are to be turned out rather than with the new factory, and have not, therefore, anything like adequate space to spare. Just as even the name of the place—Alexandria—is at first suggestive of the United States rather than of this country, so many of the most noticeable features of the works are reminiscent of "big things" abroad. The least technical visitor cannot fail to be struck with the imposing frontage with its granite pillars, the marble entrance hall, and the elaborate arrangements that are made for the comfort and convenience of all, any less than is the practical motorist with the "long feeding and receiving" stores with its overhead railway, leading down each bay, the light and airy fire-proof shops with bitumen or wood flooring, and the power-plant with its six gas-producers, indepen-

dent high-speed engines in the different departments, and conveniently arranged shunting and clutches. And, for the engineer, the machine-tools alone are well worth a visit from afar. It is sufficient, however, to say here that the buildings now in course of construction are intended to cope with an output of about forty cars a week, that they only cover a comparatively small portion of the land available, and that—in accordance with well-recognised sound policy—they are designed in such a way as to facilitate systematic extension at any time.

The Advantages of Quantity Manufacture.

Needless to say it is a good, useful type of vehicle that has been developed by the Argyll Company, for otherwise it would have been futile to have taken up the manufacture on so large a scale. Even as it is, it must necessarily be something of a bold undertaking to turn out any particular models in very large numbers in *anticipation* of a corresponding demand, though it is a kind of venture which is most welcome in the best interests of the British industry.

It is only by building cars in quantities that their cost can be kept down, and it is only by making them in advance that immediate delivery can be given to purchasers—a more and more important consideration as time goes on.

Fig. 1.—View, from above, of a typical Argyll Chassis. This illustration, which is reproduced from a photograph of the 24-h.p. chassis, shows the entire mechanism, fixed in place on the frame. It gives, in particular, an excellent idea of the manner in which the hand-operated brakes are "compensated."

Fig. 2.—The 24-h.p. Argyll Chassis, as seen from the “off” side. The special arrangement of the change-speed-lever (L) and the “reversing” lever (N), which operate the “Govan” three-speed gear, is well illustrated in this view. The four-cylinder Argyll engine, the multiple-disc clutch, and the staggered spokes in the road wheels will also be noticed. Attention should however be drawn to the absence of the dust-proof casing beneath the engine, clutch, and gear-box, this having been removed for convenience.

Manufacturing v. Selling.

Although it has been said that the new works near Glasgow will form—and, indeed, already form—a very attractive “show-place” for motorists, and for those who may be interested in motoring, yet it will readily be understood that the parent company—“Argyll Motors”—will be manufacturers pure and simple, and that they will take no direct part in the retail sale of cars. For disposing of their output, they already have agents in all the principal centres, their largest agency being that recently opened in London by Mr. Eustace H. Watson; this large showroom in Newman Street, W., is a worthy counterpart to the new factory, of which we have been speaking above, for it not only enables those residing in the London neighbourhood to select a car without delay from the forty or fifty that are to be at all times in stock, but it will store every component part of each standard model in readiness for immediate delivery on demand.

Characteristic Argyll Features.

The Argyll cars, which are made in several sizes, including those having 4 and 2-cylinder engines, are—speaking quite generally—of the well-known and orthodox live-axle type. They are not, however, mere slavish copies of any particular Con-

tinental model, for they possess a number of special features of their own.

These are, with but few exceptions, incorporated into the design of each size of car, and the more important of them may be briefly enumerated as follows. Probably that which will appeal most forcibly to intending purchasers is the change-speed mechanism, for this is designed in such a way that no sliding spur-wheels are brought into mesh with one another while the car is in motion, and therefore no special skill is required in operating it. It gives three forward speeds and a “reverse,” and it affords a direct-through-drive on the top speed. Next in importance, possibly, is the clutch, for on all but the smallest Argyll cars, multiple disc clutches of the Hele-Shaw pattern are employed, but hardly less noteworthy are several other details which will also be dealt with in an adequate manner in due course.

Merely to draw attention to them now, mention should be made of the pressed steel frame, the side members of which have a Π -shaped section; the tubular front axle, which is strongly stayed on the underside; the “live” rear axle, which not only has roller bearings, but is constructed with a detachable cover-casting forming the upper portion of the casing; the road wheels, which have

View of the 24-h.p. Argyll Landaulette, as a closed carriage.

staggered spokes that give them great lateral strength, and also enable them to be tightened up if the wood should shrink; the steering-gear, which is of an adjustable, worm-and-nut pattern; the centrifugal circulating pump, which has no stuffing-box; the neat hand-levers that are fitted above the steering-wheel; the simple type of rod-mechanism which is employed for connecting the small control-levers with the parts operated by them; and the strong, well-finished bodies, which have pressed-steel panels.

Present Standard Models.

This year's pleasure vehicles include those of 26-30-h.p., 24-h.p., 16-20-h.p., and 12-14-h.p.—all of which have 4-cylinder engines—in addition to a twin-cylinder vehicle of 10-12-h.p. Of these, the 24-h.p. model alone has an Argyll engine, the others having Aster engines. Except in comparatively small details, all are designed on the same general system, such differences as there are—apart from size and strength of each part—referring chiefly to the clutch, the universal joints in the propeller-shaft, the adoption of a thermosiphon system for the cooling water, and to the provision of a magneto as an alternative ignition apparatus. All but the 10-12-h.p. model have, for instance, metal-to-metal multiple-disc clutches, whereas this smallest type of car has an internal leather-faced cone clutch instead. In the same way, a different type of universal joint is used on the largest models to that employed on the less powerful vehicles, and all cars, except the 10-12-h.p. type, have pumps for circulating the water through the cylinder jackets. A high-tension magneto forms a part of the equipment of the 24-h.p. Argyll engine, but magnetos are not always fitted to the other engines.

Attention has also been devoted to the manufacture of light vehicles for commercial purposes, and a 15-cwt. delivery van forms one of the standard Argyll types.



Amendments to the Laws governing Motor Cars.—The following is a list of the principal amendments to the Motor Car Acts which the Joint Committee of the Automobile Club and the Motor Union have formally resolved to recommend to the Royal Commission on Motor Car Traffic:—

(1) *Speed Limits.*—The abolition of all arbitrary or fixed speed limits, on the ground that such limits are not desirable in the interests of public safety, as they tend to weaken the law requiring an automobilist to drive at all times with due regard to the condition and use of the highway, and to the amount of traffic which is or may be reasonably expected to be upon it.

(2) *Driving Licences.*—(a) Licences to be endorsed only for serious offences, viz., those against the provisions of Clause 1 (reckless driving), Clause 5 (forgery, &c., of identification mark or licence), and Clause 6 (not stopping in case of accident), the question of endorsement to be within the discretion of the magistrates.

(b) After a lapse of three years from the date of last endorsement, an automobilist shall be entitled to receive a clean licence.

(c) To add the words "within a reasonable time" after "produced," in Clause 3, Sub-section 4, which now reads, "A licence must be produced by any person driving a motor car when demanded by a police constable."

(3) *Appeals to Quarter Sessions.*—The right of appeal to be given against any conviction for an offence in connection with the ownership or use of a motor car irrespective of the amount of the penalty and the Act under which the proceedings are taken.

(4) *Notice of Prosecution.*—That notice of intended prosecution for any offence in connection with the ownership or use of a motor car be given within seven days of the time the alleged offence was committed, or within seven days of the date on which the identity of the offender was ascertained.

(5) *Fines and Fees.*—All fines and fees imposed and levied under the Motor Car Acts to be paid into the Imperial Exchequer,

The 10-12 h.p. chassis is similar to that employed for the pleasure vehicle of like power, but its construction is modified in certain respects in order to render it specially suitable for its work. It is naturally geared lower, and it has a pump for the cooling water.

Any of the standard pleasure cars can be fitted with bodies of different kinds. For this reason, the 12-14 and 10-12-h.p. chassis are made in three different lengths. The two largest models have 10 ft. and 9 ft. 3 in. wheel-bases, and can thus take any type of body, but the wheelbase of the smaller models is either 7 ft., 8 ft. or 8 ft. 6 in., according as to whether a tonneau, side-entrance or landaulette vehicle is required. The bodies usually fitted include broughams and wagonettes, in addition to those already mentioned, and many very useful and handsome patterns—with and without detachable tops, and with and without canopies and glass fronts—have been designed. All Argyll cars have a distinctive and pleasing appearance, which is largely enhanced by the excellent finish of the carriage-work, and the high quality of the upholstery.

In all cases, the "Govan" type of change-speed-gear is used, three forward speeds and a reverse being rendered available. The gear-ratios naturally vary considerably on different kinds of vehicle, but, roughly speaking, the top "speed" is equivalent to 35 miles per hour on the more powerful cars, and to 26 miles per hour on the smaller models—these rates of travel being based on the normal engine-speed of 1,100 revs. per min. The 2nd speed is always half the 3rd, and the 1st is half the 2nd.

The maker's light delivery van, which has a wheel-base of 9 ft. and is provided with 3-in. solid rubber tyres on the driving-wheels, is usually geared to 4½, 9, and 18 m.p.h. The van body proper has a large capacity for goods, the standard dimensions being 5 ft. 5 in. (length) by 4 ft. 2 in. (width) by 4 ft. 9 in. (height).



and to be devoted to the widening and improvement of highways.

(6) *Appeal to Local Government Board.*—Right of appeal to the Local Government Board to be given in cases in which a local authority refuses to license properly-equipped motor omnibuses or other public service vehicles, or closes bridges to motor cars.

(7) *Examination of Drivers.*—The suggestion for compulsory examination by the officials of public authorities is not one that can be supported, as experience has shown Government examinations for motor car drivers to be useless from the point of view of public safety.

(8) *General Identification Marks.*—General identification marks to be available for use on cars used by makers and agents for general trade purposes, and not to be limited to cars on trial on completion or trial by an intending purchaser.

Motor Volunteer Corps.—Notice is published in the *Gazette* that Capt. W. G. Davis Goff has been retired under the conditions of Paragraph 103 Volunteer Regulations.

A NEW line of motor 'buses was last week started by the London and District Motor Omnibus Company, between Charing Cross and Putney, via Leicester Square, Piccadilly Circus, and Brompton Road. In order to distinguish this company's cars each has prominently displayed on the side panels a large arrow, the service being known as the "Arrow." Other services in the London district will be in similar manner started, each having its distinctive coloured arrow indicating the route.

THE 18-H.P. REGENT CAR.—PART II.

Fig. 4.—The 18-h.p. Regent Car. View from the front showing the front axle and radiator. It will be noticed that the tie rod of the steering gear lies behind the axle instead of in front.

The Engine.

THE engine, which is shown from both sides in Figs. 5 and 6, has its four cylinders cast in pairs, with the valve-chambers arranged symmetrically on either side. The mechanically-operated inlet-valves are placed on the right, the exhaust-valves are on the left. The two cam-shafts are driven from partially-enclosed gear-wheels, which lie in front of the engine; the cam-shafts lie outside the crank-chamber proper, and are secured in place by detachable cover plates, which render them particularly accessible. For each cam-shaft there are two independent cover plates, bolted obliquely to the wall of the crank-chamber, and carrying the guides for the push-rods. Between these two covers there is a short length of exposed cam-shaft. Above each valve is a screw-plug fitting which serves as an inspection cover, while cocks are fitted in the cylinder-heads for conveniently injecting paraffin when necessary.

Mounted alongside the engine, on the inlet-valve side, is the low-tension magneto, D (Fig. 6), which is gear-driven from the cam-shaft spur-wheel. The ignition wire from the magneto passes to a conductor bar mounted alongside the cylinder heads, and electrical connection to the live terminals of the igniters is made by four chopper-switches which, besides serving as neat and efficient contacts, also provide a ready means of quickly testing the ignition. The igniters, which are mounted on iron plates, are bolted to the sides of the inlet-valve chambers, and they are positively operated by the tappet-rods which lie in contact with cams provided for them on the inlet-valve cam-shaft. These cams are exposed, for they lie outside the cover-plates, and this makes it possible to employ a very simple and accessible timing gear, which in this case merely consists of movable rollers interposed between the lower ends of the

tappet-rods and the cams. These rollers are suitably supported in guides, and they are connected by levers to a rock-shaft which is mounted in brackets attached to the crank-chamber casing. The rock shaft is interconnected with one of the levers above the steering-wheel, and is capable of being rocked over so as to alter the position of the rollers relatively to their cams, which causes the tappet-rods to be lifted earlier or later, and, consequently, the ignition to be advanced or retarded accordingly.

The carburettor, which lies on the same side of the engine as the magneto, has the ordinary type of float-feed chamber, which is supplied with petrol by pressure-feed from a tank situated at the back of the frame. The pressure-valve, F, controlling the pressure in the petrol-tank, is situated immediately above the exhaust-pipe and is visible in Fig. 5. No automatically-operated valve is fitted on the carburettor, which draws its supply of warm air through a pipe which terminates in a box surrounding the exhaust-pipe, but the main throttle-valve is interconnected with an auxiliary air-valve, E, which compensates for variations of load. In the warm-air pipe is a sliding port which enables the temperature of the air supply to be

Fig. 7.—The 18-h.p. Regent Car. View of the dashboard showing the neat fittings which are mounted on it. The control levers and pedals are also shown and part of the lubricating tank, G, which lies outside the frame, is also visible.

when an additional supply is deemed necessary.

General Appearance.

The Regent chassis is being placed on the market fitted with a roomy side-entrance body painted and upholstered in Napier-green, and the fittings, which are all nickel finished, give the complete car a particularly smart appearance. The bonnet and the control levers above the wheel are of the Mercedes type, and the fittings on the dash are, as is evident from Fig. 6, particularly well arranged.

Dimensions.

The following are the principal dimensions of the Regent car:—

Engine. — Bore, 90 mm. ; stroke, 120 mm. ; h.p., 18 ; speed, 1,000 r.p.m.

Chassis. — Wheel base, 9 ft. 6 ins. ; track, 4 ft.

Wheels.—Size, 810 mm. × 90 mm.

Complete Car.—Length, 12 ft. 9 in. ; width, 4 ft. 9 ins. ; weight, 19 cwt.

Fig. 5.—The 18-h.p. Regent Car. View of the engine from the near side showing the jacket surrounding the exhaust pipe, from which the carburettor takes its supply of warm air; also the prominent position of the pressure valve, F, for the "pressure feed."

varied. The throttle-valve is under the driver's control in the usual way, being connected to a hand-lever above the steering-wheel. It is also connected to a centrifugal governor, however, which thus automatically controls the speed of the engine, but the effect of the governor is subject to the position of the throttle-lever, which is interconnected with it through a spring.

Cooling is effected by the usual type of centrifugal pump, which is gear-driven from the engine. A honey-comb radiator forms the front of the bonnet and immediately behind this is a belt-driven fan. The lubricating oil tank is situated outside the frame near the off-side front step, and the oil is fed to the lubricator on the dash—from which it finds its way by gravity to the bearings—by means of the exhaust pressure, the same pressure-valve which is used for the petrol supply being used for this purpose also. On each side of the lubricator is a neat glass oil-cup fitted with a plunger for forcing oil directly into either half of the crank-chamber

Fig. 6.—The 18-h.p. Regent Car. View of the engine from the off side, showing the magneto, D, and the chopper-switches, D¹, for the igniters. The carburettor and the auxiliary air valve, E—which is interconnected with the throttle—are also prominent in this view.



A Seasonable Banquet.—While most of the London streets are "up," and the roadway of Piccadilly resembles nothing so much as 203 Metre Hill at Port Arthur after it was taken by the Japanese, the Paviers Company have appropriately selected the occasion for holding their banquet. The chairman of the Company, in reply to the toast of the evening, admitted what few present (or elsewhere) would dispute, that though great advancement had been made in paving the City streets, there was still room for improvement. The chairman hoped that he would live long enough to see the City without a horse, though his reason for anticipating the horseless age in the City appears to have been his rather touching belief in the future of electricity. "Electricity," he said, was in its infancy (we are always hearing this), while horses were on their last legs." As far as the disagree-

able task of pulling vehicles is concerned that may be the truth, but it does not seem at present that it is electricity that is likely to supplant them. At the same time, without sharing his reasons, we may share his hopes that a horseless age for the City is rapidly approaching. The Paviers Company no longer, we are informed, exercises active control over the trade. Let us hope, considering the progressive sentiments uttered, that if it did so, the workers of London streets, when the roads are up, would not be permitted to leave off at mid-day every Saturday and to do no overtime work. However, the united Press of the Metropolis has made fun of this quaint state of affairs for ages, but, apparently, it will continue till the Paviers Company adds another four centuries of existence to those which it has already enjoyed.

THE EMPIRE SPRING WHEEL.

(Continued.)

Action of the Springs.

IN order to illustrate this principle of compensation, we have prepared the diagrams shown in Fig. 2. To a certain extent these diagrams represent the internal arrangements of the "Empire" wheel, but they are not intended in any way to illustrate its construction, for this will be described presently. No reference letters, in the usual sense of the term, have been used on these diagrams, but the outer circle is supposed to represent

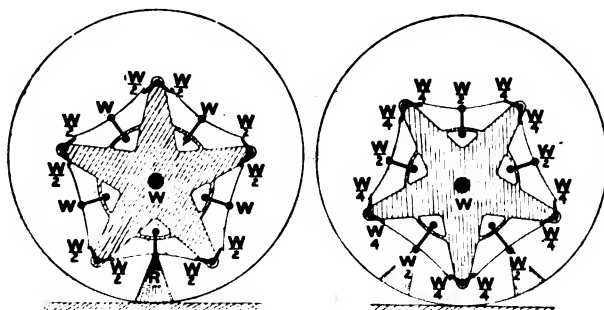


Fig. 2.—Diagrams illustrating the compensating system adopted in the "Empire" wheels, and showing how the distribution of the load, W , is affected by the number of points of support, R .

the rim, and the inner, star-shaped member represents a casting which is mounted on the axle and carries the leaf-springs, one of which will be seen between each pair of radial arms. The springs rest on rock-levers, and their centres are anchored by bolts to the star-shaped casting. In the left-hand view, the axle is supported at one point only, while, in the right-hand view, there are two points of support. The load due to the weight on the axle is denoted by the letter W , while the reaction or virtual upward lift of the ground is denoted by the letter, R . In

the left-hand diagram, R is concentrated at one point; the spring which rests on R is stressed, therefore to the maximum. By virtue of the rock-levers which support the ends of each spring, however, all the springs are similarly stressed. It is these rock-levers which form the essential element in the compensating device, and the distribution of the forces due to their presence is denoted by the reference letters W . In the right-hand diagram the reaction, R , is distributed over two points of support, each of which lifts upward with a force equal to $\frac{R}{2}$, and the springs resting on them are therefore only

stressed to $\frac{W}{2}$, or half their maximum. All the values assigned to the distributing forces in the right-hand diagram are exactly half those in the left-hand diagram. The load on the springs, therefore, in such a wheel as is here diagrammatically illustrated, would fluctuate from $\frac{W}{4}$ to $\frac{W}{2}$ five times in every revolution, or 3,300 times in a mile with a 32-inch wheel. At 30 miles an hour this means 1,650 fluctuations per minute. If the springs were not compensated, the periodicity of the fluctuations would be reduced by four-fifths (i.e., to 330 per minute), but the deflection of each spring would be doubled.

By altering the number of points of support, so that they vary between three and four, instead of between one and two, the fluctuation of stress is then from $\frac{W}{3}$ to $\frac{W}{4}$, that is to say, it has been reduced by five-twelfths—the importance of many points of support is, therefore, obvious. The foregoing remarks apply solely to the running of a wheel over a perfectly smooth road. This is naturally only one part of the work which any spring wheel is called upon to perform, but in other respects the "Empire" wheel acts as a shock-absorbing

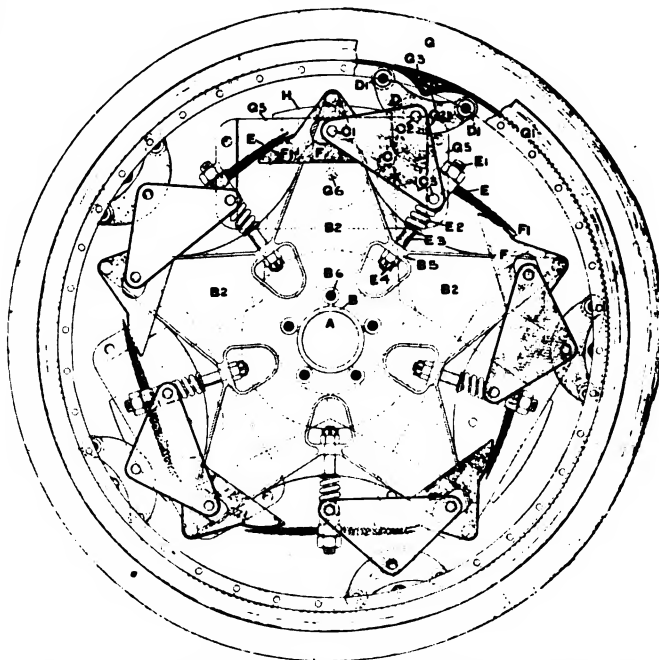


Fig. 3.—The "Empire" Wheel. View of the interior after removing the cover.

Fig. 4.—The "Empire" Wheel. Elevation showing general arrangement of parts.

device in much the same way as with those of other inventors. From the shock-absorbing point of view the "Empire" wheel has a "full" range of action, by which we mean that slight road unevennesses of any kind have an effect upon the springs.

Construction of the Wheel.

Several types of wheel have already been designed by Mr. Robinson to suit the different kinds of work which it is intended that the "Empire" wheel should undertake. All these types, however, virtually belong to either one of two standard patterns, both of which we are now able to illustrate and describe. There is a considerable difference between these two models, in fact, in a sense, one of these may be said to be the inverse of the other. The first model which we will describe is that illustrated in Figs. 1, 3, 4, 5, 6 and 7; it is a wheel designed for use on touring cars, and an experimental set has been in use on a car for many months. In Fig. 3 the outer cover of the wheel has been removed in order to show the interior, of which Fig. 4 is a drawing. In Fig. 6 a smaller portion of the interior is shown on a larger scale in order to better illustrate the construction, and Fig. 7 is a photograph of the wheel after removing the resilient member, and this illustrates one of the most important features of any spring wheel, viz., the method of aligning the wheel on the axle and supporting it under the side shocks to which any wheel is perpetually subjected.

Referring to Figs. 4 and 5, the axle, A, is fitted with a perforated sleeve, A², which forms an oil box for the proper lubrication of the hub member, B, which is retained in place by the nut, A¹, in the usual way. The hub member, B, is much the usual type of "housing" to that employed in artillery wheels, it has a fixed flange, B¹, and a corresponding loose flange opposite to it for securing, by the bolts, B², what would in the ordinary wheel be the spokes. Instead of spokes, however, there is in the "Empire" wheel a star-shaped casting, B³, which has, in the wheel illustrated, five radial arms. Each of these arms terminates in a wide boss, B³, which

forms a pivot for the compensating rockers, F. It is these rockers, F, which support the ends of the laminated leaf-springs, E, and the saddle ends, F¹, of these rockers are, it will be noticed, specially curved for the purpose of giving a true rolling motion between the two surfaces in contact when the wheel is in action.

The springs, E, are anchored to the central casting, B², by hinged bolts in such a manner that they are quite free to take up any oblique position which may be necessary. The springs are held in the clamps, E¹, and these clamps are connected to eye-bolts, E², which, after passing through the bosses, B³, are secured to the casting, B², by the nuts, E⁴. The clamps, E¹, for the springs, are best shown in Fig. 5, but the anchor bolts, E², and the position of the bosses, B³, are very clearly shown in Fig. 6. It will be noticed that the nuts, E⁴, have plenty of clearance to allow for the deflection of the springs, E, and the consequent receding of their anchor bolts under working conditions. Another point to be noticed is that by adding a liner or thickening piece to the saddles, F¹, and tightening up the nuts, E¹, the springs can be initially compressed and might even, if it were thought advisable, be "screwed up" to take all the normal "dead-load" without deflecting. Surrounding the anchor bolts, E², are short helical springs, E³, but these are merely provided as a precaution against damage through a possible breakage, and they are not in any way supplementary springs as the term is generally understood with reference to spring wheels, in fact they are, as will be seen in Fig. 5, normally quite out of action. Before passing on to the other essential details of the wheel it will be as well to draw attention to the fact that the essential features of the compensated system of springs have now been described, and it will, therefore, be easy to understand, in the light of our preliminary remarks, and from what has now been said of the construction, how a load applied to the centre of any one spring is immediately transmitted through the rockers, F, to every other spring in the wheel.

(To be concluded.)

The Retort Courteous.—The following is a letter to which we refer editorially, elsewhere, which has been written by Mr. Stenson Cooke, the Secretary of the Automobile Association, to the *Surrey Comet*, in reply to certain editorial strictures in that journal:—

I am sure the article in your issue of September 20th is influenced by a misconception of the whole matter. Anyone with a knowledge of motoring, however small, will admit that it is quite impossible for the driver of a motor car to estimate its speed within a mile or so per hour. Our cyclist's efforts are therefore directed to the preservation of law and order by warning motorists who are apparently, and in many instances unconsciously, exceeding the legal limit.

Your article infers that the sole duty of the local police is to encourage the commission of offences against the law, and it objects to any organisation such as ours, which by preventing these offences contributes to the peace instead of disturbing it. The law of speed limits has been clearly shown to be both impracticable and inequitable. Instead of having effected any material increase in the welfare of the great general public, for whom all laws are or should be made, the enforcement of this law is abused to an extent which has become unbearable. The motorist is considered not so much from the point of view of the wrongdoer, as a source of revenue. The police leave the towns and villages unprotected while they time motorists on inviting stretches of road, most of which are safe from all possibility of accident. Two conclusions can reasonably be drawn from this.

First, that the average motorist is evidently a gentleman who instinctively considers the well-being of his fellow-man, for the simple reason he does not go fast where there is danger to man or beast.

Secondly, that the primary object for which the police are employed, namely, the safety of the public, is forgotten in the rush for the motor man's money. The question is not one of "safety" but "fines," and this is contrary to all principles of equity for which the law of England has hitherto been justly famed. I can adduce evidence from gentlemen of unquestionable integrity to the effect that in four out of five instances it is not safe for them to drive a motor car through a trap at a higher rate than ten miles an hour without being accused, and in default of overwhelming evidence convicted, of going at more than twice that speed.

Fostered, as it is, by the farmer with horses to sell, by the borough councils with large floating debts which they seem to think motorists should pay, by a Bench who consider that the purchase of a motor car automatically converts an otherwise harmless gentleman into a creature of blood lust to slay all before him, the prejudice is so strong, so rabid, that many a car owner, sick and disgusted with the tissue of erroneous calculations which confronts him, pays his fine rather than go to the further expense of employing counsel to defend his case, whose costs he has to pay even if he is exonerated completely.

Small wonder that the Automobile Association has been formed, not, as I have plainly shown, with the object of thwarting the police, but to relieve them of disagreeable and unnecessary work.

One may doubt if the great men who draft the laws of our country ever expected that one of these laws would be prostituted in a way so loathsome to any clean-minded sportsman, as the setting of traps undoubtedly is, and if our action be deemed ungentlemanly, the conduct of Englishmen who, a hundred years ago risked their lives to save French aristocrats from what a maddened rabble termed justice, was also questionable.

THE CARON MAGNETIC IGNITER.

THE splendid performance of the Vinot car in the Tourist Trophy adds interest to any special feature of its construction, and we, therefore, take this opportunity of giving our readers a description of the Caron magnetic igniter, with which the four cylinders of the Vinot engine were fitted at the time of the race.

Magnetic igniters are self-contained devices for utilising direct the low-tension current from a magneto, both for producing the requisite low-tension spark in the cylinders and for separating the contact points of the igniter. As the name implies, the separation of the contacts is per-

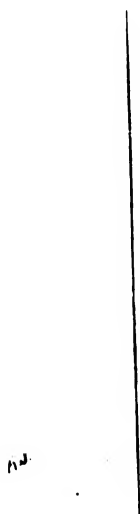


Fig. 1.—The Caron Magnetic Igniter. View showing the comparative size of the Caron Igniter and an ordinary high-tension ignition-plug. The "Burlington" ignition-plug is shown on the left and the Caron Igniter is beside it. On the right is another view of the igniter in which the coil and the plug-fitting with its tubular core are shown separately.

formed magnetically—by utilising the current from the magneto—instead of by push-rods and rock-shafts operated mechanically from the engine as in ordinary low-tension ignition systems, and the inherent advantage of the magnetic igniter is the consequent abolition of these otherwise essential working parts.

Although by no means an innovation in automobile construction, it is only recently that there has been any signs of renewed activity towards the perfection of a detail which in the past has given comparatively little satisfaction for the labour spent upon it. Foremost among the causes which were effective in committing this type of ignition device to comparative oblivion were the high consumption of current (then necessarily supplied from batteries), the difficulty of maintaining compression, and the amount of metal which it was usually found necessary (for constructive purposes) to have projecting into the combustion chamber, but was a source of pre-ignition. The comparative simplicity and reliability of ordinary high-tension ignition systems, using jump-plugs, offered greater attractions at a time when there were so many other more important details in motor-cars to be perfected, and the magnetic igniters were passed over in consequence. In one or two instances, lately, this type of apparatus has come to the fore again, and its good behaviour on trial is drawing increasing

attention to its advantages, which, under the influence of improved magnetos and skilled workmanship, no longer suffer to anything like the same extent from the drawbacks which were detrimental in the past.

Of the various forms in which this type of apparatus is made, the Caron—as fitted to the Vinot cars—is one of the most simple and compact which we have seen. In size it is actually not much larger than an ordinary ignition plug, while as our illustration shows it is almost exactly the same size as the "Burlington" plug, which is of unusually substantial construction. The igniter consists of three principle parts: a coil of wire, A, with an iron core, B, a plunger, C, forming one part of the contact breaker, and a plug fitting, F, for attaching the apparatus to the cylinder in the usual way. The arrangement of these essential parts is best shown by Fig. 2 which is a sectional drawing. The coil, A, does not call for any special mention, but it is compactly wound and neatly protected from accidental damage by a tubular metal sheath. It is also easily detachable from the core as is evident from Fig. 1. The core is made of two metals, the upper part, B, being iron, the lower part, B', being brass. The reason for this is that when the current flows through the coil, only the iron part of the core becomes magnetised; this part is thus enabled to exercise a very direct attraction on the iron plunger, C, which is normally held down lightly against the "earthed" contact, D, by a weak spring, C.

Fig. 2.—The Caron Magnetic Igniter. Sectional elevation showing the construction of the apparatus. The plunger, C, and its helical spring, C', are clearly shown in this drawing.

The external electrical connections for the igniter are similar to those of an ordinary jump-plug, for a separate wire is merely led from the distributing commutator to the terminal on the top of each coil. The action of the magnetic igniter is as follows:—Directly the current is switched on by the commutator it flows through the coil A, and back to "earth" through the contact at D. Simultaneously with the passage of the current through the coil, however, the core, B, becomes a powerful magnet, and it draws the plunger, C, sharply towards it, thus separating the contacts and producing a spark.

For use in conjunction with these igniters, the manufacturers supply a four-pole magneto, self-contained, with its own distributor. The magneto armature is normally short-circuited, but as the distributor arm makes contact, this short circuit is automatically broken, and the current is switched on to the igniter, which operates in the manner already explained.

AUTOMOBILISM has been accused of interfering with quite a number of trades, but for magnificent absurdity commend us to Mr. Jamrack who, through a morning contemporary, informs us that motor cars are causing owners of country houses to give up keeping pet wolves, as they have taken to motoring instead. Perhaps it is as just as well—not to say better.

THE BRITISH ARMY AND MECHANICAL TRANSPORT.— PART II. *(Continued from page 1229.)*

THE BRITISH ARMY AND MECHANICAL TRANSPORT.—The camp at Hurley—looking down the lines. On the right is the first section of the repair train, on the left are the carpenters' shop and foundry which have been unpacked from the second section.

Systems of Transport.

EVERYONE who has ever given a thought to the question of military transport must have realised the enormous difficulties which interfere with mobility and the wide scope of, and in fact the imperative necessity for, mechanical aid. The problem before the designer of suitable machinery for army transport is far more complex than that which faces the constructor of commercial motor-vehicles. The commercial vehicle keeps always to the highways of the district in which it is employed, the military transport wagon, however, has to be capable of leaving the roads and negotiating any country which it may meet—country which may not only be conspicuous for the sheer absence of roads, but for the utter unsuitability of its soil to withstand the heavy strains imposed upon it by the wagons and engines. It is certainly this difficulty of unsuitable ground which forms the fundamental difficulty of military transport, and its primary impor-

tance lies in its being the one factor incapable of modification in practice. Its solution may be considered as a problem by itself, independent—so far as it is affected in general principles—of future developments of mechanical details; although such mechanical improvements are more than likely to be a most important factor in determining the future lines on which military transport will be carried out, should more than one satisfactory scheme be found for overcoming the fundamental difficulties.

At the present time no unusual features characterise the simple transport scheme of the British Army. Standard types of military wagons are dragged one behind the other, in the form of a train, by a standard type of steam traction engine. The steam traction engine is, perhaps, a heavy cumbersome machine, but under the existing system of simple traction its very weight forms a vital part of its constitution. To drag a loaded wagon over the ground it is obviously

THE BRITISH ARMY AND MECHANICAL TRANSPORT.—The Repair Train Smithy. A Milnes-Daimler lorry is seen in the foreground on the right.

THE BRITISH ARMY AND MECHANICAL TRANSPORT.—The Repair Train Foundry. Two men are working on the moulds, and in front is an electrically-driven and oil-fired blast-furnace capable of running 56 lbs. of cast-iron in the two crucibles. Some castings turned out by this plant are lying on the ground.

essential that the engine which draws it should itself be able to obtain a fair purchase on the ground with its wheels. Under ordinary conditions this hold is obtained merely by the friction of the surface of the wheel in contact with the surface of the ground, which is all that prevents the wheel slipping.

The tendency for the wheel to slip is obviously proportional to the power necessarily exerted by the engine to move itself and the loaded wagons behind it, while the friction tending to stop the wheels slipping is merely proportional to the weight which those wheels support. If then they do slip, there are but two alternatives by which they may once more be made to take a natural hold on the ground; one is to reduce the load of the wagons, the other is to increase the weight of the engine. Neither method can be considered as satisfactory, for both reduce the effective value of the engine as a transport machine. The limit, beyond which the engine cannot usefully be increased in weight for field work, is found to be a maximum of 4 cwt. per 1 inch width of tyre, with a 6-ft. wheel. The wheels cannot, of course, be made indefinitely large, so there is necessarily a limit—even if it is not very narrowly defined—to the useful size of engine, and as it is also found in practice that the useful load behind the tractor should not, for field work in unknown country, exceed the weight of the engine itself, there is, therefore, a limit to the size of a transport train as a whole when working under these conditions.

Obviously, therefore, there is room for improvement, and Major Donohue, who has naturally given this side of the subject his very close attention, hopes that before long some really useful development will take place along either one of two lines open to the inventor. The first of these is to improve the adhesive power of wheels without increasing their destructive power on the road, and the second is to utilise the useful load which the engine is dragging, as "adhesive load" for driving

purposes. In connection with improvements on the ordinary wheel, the work of Mr. Diplock—whose "Pedrail" has been so fully described in these columns—is quite unique, and his invention stands alone to-day as the one bold attempt at the practical solution of this particular problem.

On the other side there is Colonel Renard—of the French Army—who has developed and put into actual use a scheme by which the useful load is made effective for the purpose of traction. Colonel Renard's train is already known to our readers; his idea is merely to make one axle of each wagon a "driving axle," and to couple up the engine to each of them by means of a series of universally-jointed propeller-shafts. Under such conditions the weight of the tractor is comparatively immaterial, because its capability of transporting useful loads, hitched on behind, no longer depends on the adhesive power of its own wheels. So far as the load carrying units are concerned, they are no more likely to suffer from insufficient adhesion than is the ordinary motor car, for almost any vehicle can be relied upon to propel itself—given the requisite power—and it is only when it is called upon to drag other vehicles behind it, whose load is independently supported, that these troubles begin to arise. The case is, of course, analogous to that of the railway locomotive and its train, most heavy goods engines having their wheels coupled together to form driving wheels, so that the whole weight of the engine may be rendered effective for the purposes of adhesion, instead of only that portion of it which is supported by the axle which forms the crank-shaft.

Each scheme has, no doubt, advantages and disadvantages peculiar to itself, but at the present day judgment must be withheld until further knowledge, as the outcome of practical experiment, is available.

(To be concluded.)



THE Automobile Club continues to add regularly to their list of members many of the most prominent men in the United Kingdom. In a long roll recently elected

we notice Major-Gen. Sir Edward Hutton, K.C.B., Col. Sir S. M. Lockhart, Sir Hugh Bell, Lord Lucas, and Mr. Edward C. Grenfell.

THE TOURIST TROPHY RACE QUESTION.

So much greater, and so much more general, is the interest that is now taken in the Tourist Trophy type of race—the first contest of the kind having proved so pre-eminently successful—that many of our readers may find it useful to have their attention drawn to the numerous special articles, dealing with this important subject, that have appeared in our pages. The following summary will be found to constitute a handy index to the nature of these previous articles, the continuation of which we resume this week below:—

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Engine Tests in the Shop.

Both in the case of the Wolseley engine (slow speed) and of the De Dion engine (high speed), the tests were made to ascertain the rate of fuel consumption at various speeds. First of all, they were taken with the throttle-valve full open and afterwards the throttle-valve was approximately half closed and a similar series of results obtained. Throughout both sets of trials, the time of ignition was varied correctly to suit the speed and suit the load, so that correctness of "timing"—obviously a vastly important item—may be assumed throughout. For the Wolseley tests—for which we are indebted to that company—a dynamometer brake was used for imposing the load and for ascertaining the "pull" and the horse-power. In the case of the De Dion—which we tested

ourselves—the engine was coupled up direct to a dynamo and the power measured electrically. For convenience of reference, the results are shown diagrammatically in Figs. 1, 2, and 7 for the typical slow-speed engine, and in Figs. 3, 4, and 8 for the typical high-speed engine.

Another test made with the Wolseley engine shows how the fuel consumption varies with the horse-power when the engine is running at normal speed, *i.e.*, it indicates the effect of the throttle-valve (variations of load) on economy, and proves the merit of working at full-load when possible. These results are reproduced in graphic form in Fig. 5.

In Fig. 6, the results obtained from tests made with a 3-cylinder Brooke engine are given, and these show the

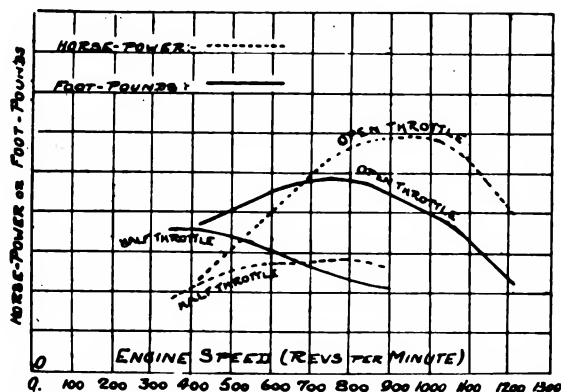


Fig. 1.—Slow-Speed Engine. Curves showing the "horse-power" and the "pull" at various speeds, both with the throttle-valve full open, and also with it "half" closed.

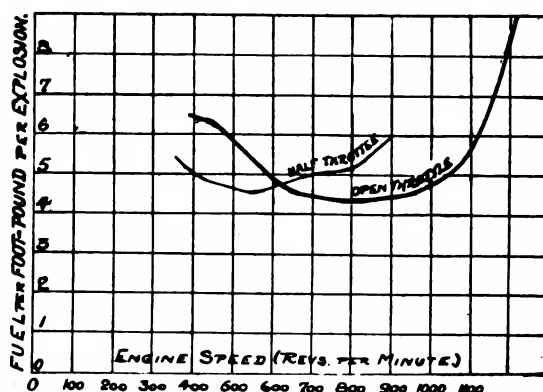


Fig. 2.—Slow-Speed Engine. Curves showing the fuel economy at various speeds, both with the throttle-valve full open, and also with it "half" closed.

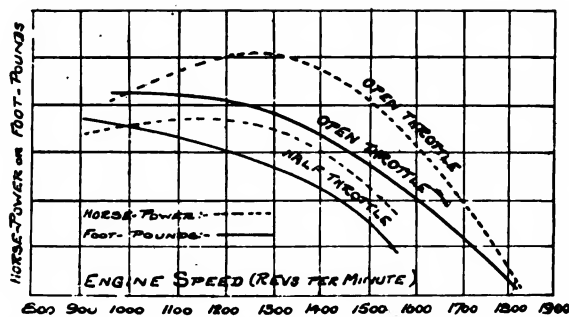


Fig. 3.—High-Speed Engine. Curves showing the "horse-power" and the "pull" at various speeds, both with the throttle-valve full open, and also with it "half" closed.

effect of speed, and of throttling, on the suction of an engine, and therefore on the quantity of mixture which can be drawn into the cylinders. The engine, which had $3\frac{1}{2}$ in. by $4\frac{1}{2}$ in. cylinders, was for this purpose driven by another engine at various speeds (ranging from 200 to 1,000 r.p.m.) and various sized throttle orifices were introduced into the induction pipe—the size of the hole varying from $1\frac{1}{4}$ sq. in. to $\frac{1}{16}$ sq. in. area. A special apparatus was fitted to the induction-pipe—introduced between the throttle-valve and the engine—to indicate the suction in ounces per sq. in. In Fig. 6, the areas of the orifice in square inches are denoted.

The Wolseley Engine.

The all-important facts shown by the tests of the Wolseley engine are (1) that the maximum power (h.p.) is developed at a speed of about 950 revs. per min. with a full open throttle, and that, when the throttle-valve is "half" closed, the highest power is available at about 780 revs.; (2) that the maximum pull (foot-pounds) is obtained at about 800 revs. (the "normal") in the former case, and at 350 revs. in the latter; (3) that the maximum efficiency in relationship to "pull" is got at normal speed when the throttle is wide open, and that—although lower in degree—the best efficiency with a "half" closed throttle is at about 550 revs. per min.; and (4) that the efficiency falls off with ever-increasing rapidity when the speed is allowed to considerably exceed the normal. It should be borne in mind, however, that the carburettor may be very largely responsible for the shape and character of these curves, and that, throughout all the tests referred to in this article, the figures might have undergone considerable modification if a different type of carburettor had been employed instead. But, in spite of this, the curves are probably fairly charac-

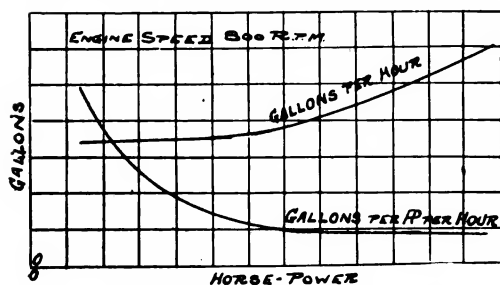


Fig. 5.—Slow-Speed Engine. Curves showing the effect, on fuel consumption, of closing the throttle-valve to reduce engine power.

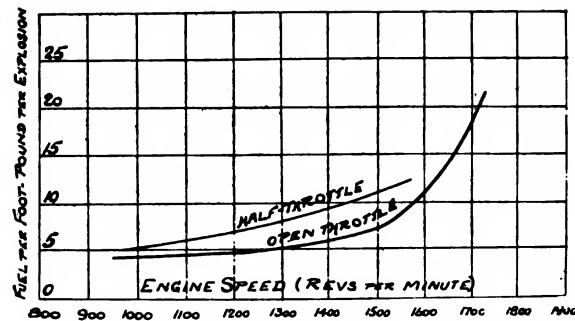


Fig. 4.—High-Speed Engine. Curves showing the fuel economy at various speeds, both with the throttle-valve full open and also with it "half" closed.

teristic of most modern petrol engines, and are, therefore, useful for the purpose of drawing practical conclusions of the kind now needed.

The corresponding morals to be deduced from the four facts enumerated above may briefly be expressed as follows:—(1) The best apparent performance of a car can be secured by letting the engine run faster than its "normal" speed. (2) When hill-climbing on any particular gear, the greatest pull is obtained at normal engine speed; if one is, however, working with a partly closed throttle, the best pull will be got at a somewhat lower speed. (3) It would not pay a competitor in the Tourist Trophy race to allow his engine to materially exceed its normal speed, and if the throttle-valve has to be partly closed, the engine speed should be lower still. (4) Even leaving out of consideration the extra pull that is required to overcome the greater wind-resistance, the fuel consumption of a car is enormously increased if the engine is allowed to "race."

Turning to Fig. 5, one sees the extent to which throttling is detrimental to economy, for although the petrol consumption per hour increases as the horse-power is increased (by opening up the throttle), yet the petrol used per h.p. goes down. It naturally goes down very rapidly at first, less so towards full load.

The further curves grouped together in Fig. 7 are given for the benefit of those who wish to see the effect of speed and load on fuel consumption per explosion, b.h.p. hour, per foot-pound per hour, and per hour only. We do not propose to refer in detail to them.

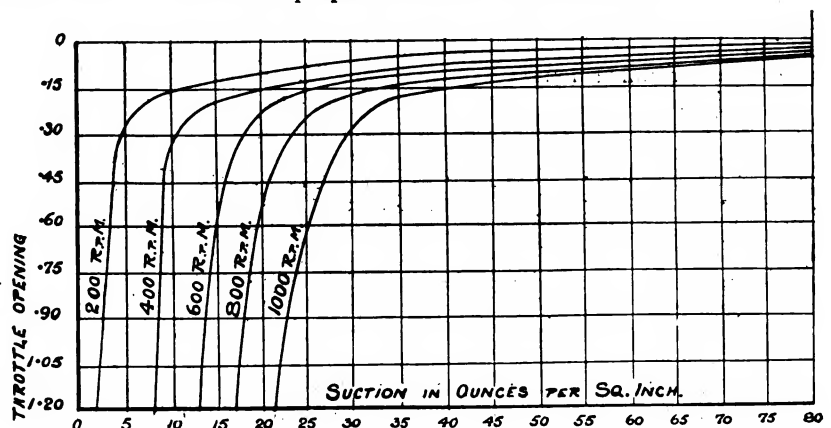
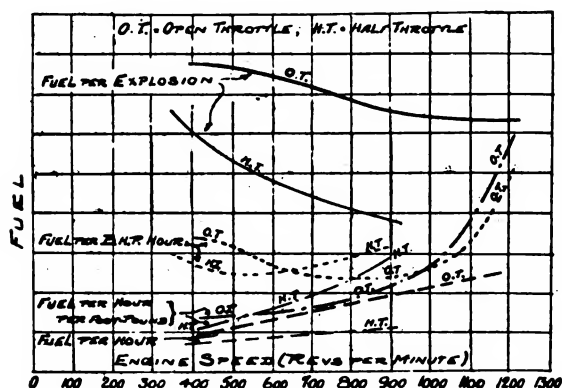


Fig. 6.—Curves showing the effect of speed and throttle on the suction in the cylinders of an engine. The throttle openings are expressed as areas in square inches and not as diameters.

Figs. 7 and 8.—Curves showing the fuel consumption of petrol engines at various speeds, both with the throttle-valve full open and with it partly closed.



Slow Speed Engine.

This engine and its combined throttle-valve and carburetor were identical with those fitted to the car tested by us.

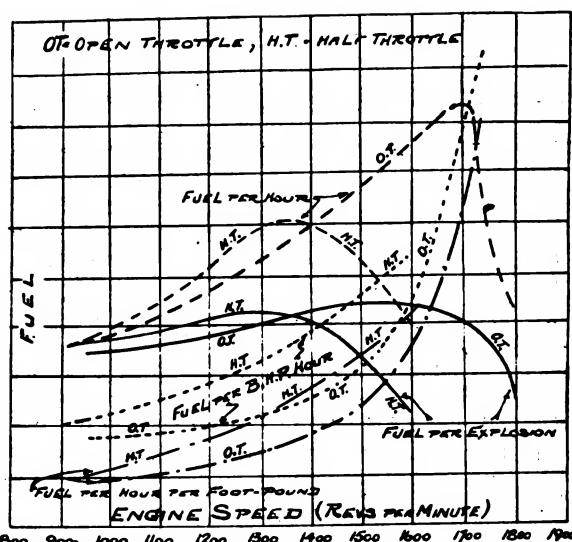
The De Dion Engine.

Various causes render the figures which we obtained from the De Dion engine less conclusively characteristic of typical engines in general, or even of this well-known make, for not only was the electrical efficiency of the dynamo an unknown quantity, but the engine at our disposal was one that had been in regular hard work for a considerable time, and might well not have been at its best. The speeds, however, were accurately obtained by a reliable tachometer, and the petrol consumption was correctly taken and checked, so that our curves give a good general idea concerning the data required.

In Fig. 3 (which corresponds with Fig. 1 of the slow-speed motor), it is seen that the highest power (h.p.) is obtained at a considerably greater speed than is the maximum pull (foot pounds), and that the effect of throttling is of much the same nature as in the case of the Wolseley tests. The highest horse-power is got at a speed of 1,250 revs. per min., and, with the throttle partly closed (to give half power at about 1,500 revs.), the best power is available at 1,150 revs. The "pull," however, continues to increase with lower engine speeds, so that the tendency, when hill climbing, is for a car to continue running longer without changing gear, even though the engine-speed may have been reduced considerably below the normal by the steepness of the gradient.

Even more important is the fact brought out by Figs. 4 and 8 (corresponding to Figs. 2 and 7) that the fuel economy goes steadily down as the speed goes up, even to the normal, and that the engine becomes seriously inefficient at extremely high speeds. One great difference shown to exist between the two engines by Figs. 7 and 8 should be noted. The fuel consumed per hour steadily increases with the speed in the slow-speed engine, but it rapidly rises and then falls, even more rapidly, in the high-speed engine. This is a point to which reference was made when dealing with the tests carried out on the 6-h.p. De Dion vehicle.

From some points of view, the curves obtained from this high-speed engine appear to form actual continua-



High Speed Engine.

tions of those denoting the characteristics of the low-speed engine, and therefore a very fair idea can be obtained as to what results might be expected from engines that have run at medium normal speeds.

Tourist Trophy Aspects of our Tests.

The main morals to be drawn from the experiments conducted by us have, for the most part, been now pointed out, and it has been very fully proved that economy results from full load (keeping the throttle full open as much as possible), from never letting the engine run faster than its normal speed (not driving "all out"), and—consequently—from having as many different "speeds" in the gear-box as possible. There are one or two equally important points to which attention should be drawn, even if they are obvious to the majority of our readers, these referring to "ignition timing" and to "windage."

Every motorist knows that even when the throttle-valve is left wide open, and the engine is doing no work, the speed of an engine can be controlled entirely by retarding the ignition. It is also clear that the amount of petrol then being consumed is the same as though the engine were developing its full power at that speed, and that therefore an enormous waste of fuel can result from incorrect "timing." The same remark of course applies to pre-ignition, and in both cases—be it noted—injury is apt to result to the mechanism.

The chief point about "windage" is that—unlike road resistance—the extra work that has to be done by the engine, in forcing the car through the air, increases enormously with speed. On a level road, for instance, a car weighing about a ton and having a cross-section of, say, 12 square feet, will require a pull of about 60 lbs. to overcome road-resistance, whatever speed it may make, but whereas the extra pull required to overcome windage (on a still day) may be only 6 lbs. at 10 miles an hour, it is about 54 lbs. at 30 m.p.h., and 150 lbs. at 50 m.p.h. It is, therefore, almost negligible when the car is travelling slowly, but is so serious at extremely high speeds that an additional restraint is automatically imposed on excessive speed by the T.T. rules.

(To be continued.)

RACES, RECORDS, AND TRIALS.

DOURDAN SPEED TRIALS.—Clifford Earp who, with his six-cylinder Napier, made the best time of the meeting, both for the standing mile and the flying kilometre, takes his ease whilst waiting his turn to race.

Dourdan Speed Trials.—On Sunday the speed trials over the kilometre and mile were successfully carried through on the Dourdan measured stretch, under the auspices of the *Journal de L'Automobile*, under the rules of the A.C. de France. Two world's records only were lowered, these falling to Cissac in the motor bicycles under 50 kilogs. class, his time over the standing mile on a Peugeot machine being 53½ secs., beating Giuppone's previous record of 55½ secs. The other new record was also made on a Peugeot motor cycle by Giuppone, his time for the standing mile being 57 secs., beating his own previous record of 1m. 3s.

Clifford Earp, on the 6-cylinder Napier, again upheld Great Britain's position by making the best speed of the whole meeting, his time over the standing mile being 53½ secs., and over the flying kilometre 25½ secs. In the Tourist class, Bablot on a Berliet car, made the fastest time of 1m. 12s. for the standing mile, and 35½ secs. for the flying kilometre. The chief times at the meeting were as follows:—

Racers.

Heavy Cars (1,000 kilogs.).

	Standing Mile.		Flying Kilom.	
	m.	s.	m.	s.
Napier (Clifford Earp) ...	0	53½	0	25½
Mercedes (Faure) ...	1	8½	0	34½

Light Cars (400 to 650 kilogs.).

Darracq (Hanriot) ...	1	3½	0	29½
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Voiturettes (under 400 kilogs.).

Darracq (Touloubre) ...	1	13½	0	38½
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Motor Bicycles (under 50 kilogs.).

Peugeot (Cissac) ...	0	53½	0	27½
Peugeot III. (Giuppone) ...	0	59	0	28½
Peugeot II. (Champoiseau) ...	1	1½	0	28½

Motor Cycles (50 to 250 kilogs.).

Peugeot II. (Giuppone) ...	0	57	0	28
Buchet II. (Anzani) ...	1	8½	0	34½
Alcyon (Chauvet) ...	1	28½	0	50½

Tourist Cars.

CAT. 1.—Under 3,500 francs.

Boyer I. (Gaschet) ...	2	28½	1	31½
Bailleau (Bailleau) ...	2	34½	1	31½

CAT. 2.—3,500 to 6,000 francs.

Boyer (Lucien) ...	2	20½	1	10½
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CAT. 3.—6,000 to 9,000 francs.

Boyer (Deimner) ...	1	53½	1	0
Boyer (Delaunay) ...	1	54½	1	2½
P. Roy II. (Roy) ...	1	57½	0	58

CAT. 4.—9,000 to 14,000 francs.

Gardner-Serpollet (Chanliaud) ...	1	29½	0	48½
(Baras) ...	1	30½	0	49
Vinot-Deguingand (Deguingand) ..	1	30½	0	48½

CAT. 5.—14,000 to 18,000 francs.

Radia II. (Marnier) ...	1	46	0	54½
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CAT. 6.—18,000 to 24,000 francs.

Radia I. (Gasté) ...	1	21½	0	41½
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CAT. 7.—24,000 to 35,000 francs.

Berliet (Bablot) ...	1	12	0	35½
Mercedes (Graves) ...	1	18	0	41½

Motor Bicycles (½-litre).

Peugeot III. (Giuppone) ...	1	19½	0	41½
Peugeot I. (Cissac) ...	1	20½	0	42½
Buchet IV. (Thomas) ...	1	23	0	41½
Buchet III. (Anzani) ...	—	—	0	41½

Tricars (½-litre).

Stimula (Vandelet) ...	1	42½	0	56½
Contal I. (Rivierre) ...	1	53½	0	54½
Contal II. (Villemain) ...	1	58	1	28½

Tricars (two-seated, ½-litre).

Charron (Gaubert) ...	2	38½	1	29½
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Vanderbilt Cup.—To-day (Saturday) the race for the Vanderbilt Cup is down for running on the Long Island course, over which the American Eliminating Trials recently took place. The order of starting for the countries engaged is, Germany, France, America,

VANDERBILT CUP RACE.—Times of American Eliminating Trials.

Car.	Driver.	Entrant.	Time by Laps (28.3 Miles each).				Total (113.2 Miles).		
			First.	Second.	Third.	Fourth.			
			h. m. s.	m. s.	m. s.	m. s.	h. m. s.		
*50-h.p. Pope-Toledo ...	B. F. Dingley ...	Albert L. Pope ...	0 27 58	31 7	33 35	28 10	2 0 50		
*90-h.p. Locomobile ...	Joseph Tracy ...	Dr. H. E. Thomas ...	0 31 27	31 13	29 56	29 13	2 1 49		
50-h.p. Royal Tourist ...	Robert Jardine ...	E. D. Sherman ...	0 34 44	33 21	35 36	35 37	2 19 18		
50-h.p. Haynes ...	Frank Nutt ...	Elwood Haynes ...	0 35 38	38 45	35 35	33 34	2 23 32		
60-h.p. Thomas ...	Montague Roberts ...	H. S. Hought ...	0 30 53	36 22	40 50	41 35	2 29 40		
*60-h.p. Christie ...	George Robertson ...	James L. Breese ...	1 50 37	32 38	Stripped tyres.				
*75-h.p. Pope-Toledo ...	H. H. Lytle ...	Colonel A. A. Pope ...	0 28 44	Broke universal joint.					
60-h.p. Franklin ...	W. F. Winchester ...	L. H. R. Green ...	0 36 46	Broke universal joint and fuel tank.					
*40-h.p. White ...	Walter C. White ...	Rollin H. White ...	1 7 52	Broke universal joint and water tank.					
40-h.p. Matheson ...	Ralph Mongini ...	L. M. Palmer, jun. ...	Piston "seized" in cylinder.						

and Italy, and the number of possible starters amounts to 20. In regard to the American Eliminating Race, the above summary of the times achieved by the cars for the various laps should prove of interest by way of comparison with the times which will be achieved during the race itself to-day. The cars selected to represent America in the race are denoted by an asterisk. The rejection of three of the competitors who succeeded in completing the full number of circuits, and the substitution in their place of three cars which failed to get through, has created an enormous amount of feeling in the United States. During some preliminary trial runs over the course, Walter White, on his White steam racer, has been credited with covering 10 miles in 9 minutes dead, over the winding Jericho Turnpike.

Vanderbilt Cup, 1906.—A formal decision has been come to by the A.C. de France not to participate in this race next year, whatever may be the issue this year. A letter has already been sent to the A.C. of America notifying this decision.

Yorkshire Fells Hill-Climb.—Under the auspices of the N.E. Lancashire A.C., a hill-climbing event was held on Saturday last on the road between Clitheroe and Salford. The course was nearly 1 mile in length. Twenty-five cars took part. Mr. Cayley offered a silver cup for Class C, and medals were awarded in all classes as follows: Class A: Single-cylinder cars not exceeding £200, Dr. V. J. Fox, Belsize car, 3m. 23.5s. Class B: Cars not exceeding £350, A. Huntley Walker, Darracq, 3m. 10.5s. Double-cylinder cars up to £350, E. A. Riley, Belsize, 2m. 46.5s. Class C: Cars up to £500, A. H. Walker, Darracq, 1m. 58s.; Class D: Cars up to £750, George Burton, Daimler, 1m. 42.5s. Class E: Cars up to £1,000, J. R. Thompson, Mercedes, 1m. 47s. Class F: Cars exceeding £1,000, A. Birtwistle, Daimler, 1m. 6.5s.

1906 Trials.—Tyre and lamp trials are to be held by the A.C.G.B.I. next year, probably in February. The postponed Van Trials may be held during the second week of August.

Brighton to Edinburgh.—The run of the 6-cylinder Napier car from Brighton to Edinburgh, during which the top speed only was to be used throughout, commenced on Wednesday morning of this week, under the

observation of the A.C.G.B.I. The car was driven by Mr. Cecil Edge, and a considerable amount of interest anticipated in the car's performance *en route*, as, as far as possible, a specified time-table was adhered to throughout, computed at the rate of just under twenty miles per hour. The following is the time-table for arrivals, after leaving Brighton at 6 a.m., which was issued in respect to this run:—

London, 8.36 a.m.; Biggleswade, 11.51 a.m.; Stamford, 2.6 p.m.; Newark, 4.51 p.m.; Doncaster, 6.45 p.m.; Darlington, 9.54 a.m.; Alnwick, 2.12 p.m.; Dunbar, 6.12 p.m.; Edinburgh, 7.33 p.m.

The gear ratio between the engine and the back axle on the top speed is approximately 4.6 to 1; the tyres are 850 mm. in diameter, so that the speed of the car would be about 38.4 m.p.h., with the engine running at 1,760 revs. per min. We understand that on trial the car attained a speed of 46 m.p.h., in which case the engine speed must have been about 2,100 revs. per min., the car was also made to travel at 5.32 m.p.h., and the engine could then only have been turning at about 240 revs. per min. These figures in themselves are a striking tribute to the extraordinary flexibility of the 6-cylinder engine as regards speed, and now the road trial should show how far such flexibility eliminates the necessity to change speed when touring.

It has been decided by the A.C. de France to carefully consider the possibilities for 1906 of a contest for pneumatic tyres. In this, entries will be confined to makers of motor tyres, and the distance proposed is 1,000 kiloms., spread over two days. Naturally many difficulties stand in the way of satisfactory rules being arranged, especially in view of the very short distance over which it is proposed the test should take place, but it is hoped that in some way the French Club will get beyond the mere *study* of the question and actually institute the competition. In like manner the club have determined to consider the question of an extended tourist car competition through France over a distance roughly of 5,000 kilometres. The proposals put forward by the Marquis De Dion are to form the basis of the governing factors for the consideration for this event.

PROPOSALS are being made to the French A.C. by the German A.C. for the calling of an International Commission to decide upon speed events for 1906. It is suggested that only one big race should be held, all others to be rigorously boycotted. Failing the French club calling the conference, the German club propose calling one to be held in Berlin in November.

MOTOR CYCLING.

Anti-Side-Slip Trials of the C.T.C.—The awards and official report on the trials conducted by the C.T.C., at Cadogan Garage on Whit Tuesday this year—an account of which appeared in our columns at the time—has now been issued. As the tests are of much interest in regard to motor cycles, we give a *resumé* of

pushed through the cover from the inside, and secured in place by nuts on the outside. The report draws attention to two obvious defects, viz., the detrimental effect of the stud heads on the tube, and the liability of damp finding access to the fabric.

Most curious of all is the spring tyre of Mr. W. H. Robson which secured fourth prize. The spiral springs are detachable and are fixed to the special rim by wedges. It is, says the report, a splendid non-slipper and is, of course, unpuncturable. Its chief defect is the noise the springs make upon all roads, but particularly upon stone sets. The springs themselves showed very little sign of wear at the conclusion of the four days' official trial upon the roads selected, but on further testing upon rougher roads, a great many of the springs gave way, and those that remained showed considerable damage. The judges were at first disposed to be sceptical of the value of this device, but in practical use they found it to be more resilient than many of the pneumatic-shod wheels to which anti-side-slipping appliances had been fitted, and, had the springs withstood hard usage upon the road, this exhibit might have taken a higher place. It is the best non-slipper tried, and no grease, mud, or dust was met with that it failed to negotiate; it is at its best on very uneven surfaces, and at its worst on well-laid stone sets. It is, however, decidedly slower than a pneumatic, and the "dragging" is very perceptible, especially uphill. A full description of this "Syrinx" wheel is given on p. 1275.

Four other machines were selected from the preliminary trials as worthy of further experiment. These were Nos. 7, 13, 19 and 30, of which the two latter are represented in our illustrations. Mr. G. S. Sayner's device (No. 7) consisted of a linked chain laid longitudinally upon the tread, and held in place by inflating the air tube. It, however, slipped off the tyre at the preliminary trials, and before the first ten miles had been covered on the road it broke. Tried again the day following, it behaved no better, and, as it seemed to the judges that it would be unsafe to require the competitor to ride it further, it was withdrawn. No. 13, submitted by Mr. W. E. Beasley, consisted of a series of spring steel clips, from which a stud projected on each side of the tread at what was considered to be the most effective angle. Eight such clips were placed on each tyre. These stood the preliminary test on the concrete very well, but after three miles of sets half the bands were broken, and the exhibit was withdrawn. No. 19, submitted by Mr. J. Kirkland, took the form of a number of fine steel wires passing outward through the tread. The points of the wires answered their purpose on the soapy concrete, but after 200 miles on the road they had worn down level with the tread, and their non-slipping properties had vanished. No. 30, submitted by Messrs. Boote and Armstrong, consisted of a series of chrome leather bands, about 1½ ins. wide, each of such bands being provided with two metal studs (to penetrate the road surface) as well as two flat metal hooks,

ANTI-SIDE-SLIP TRIALS OF THE C.T.C.—The winning devices. The first prize was awarded to a non-skid formed by a narrow strip of rubber sewn in serpentine form to an ordinary pneumatic. See our article for details of above devices.

the awards. The Award Committee have apparently done everything in their power to ensure that their decisions shall form a reliable indication of the most suitable forms of non-skid among the 33 devices entered for competition. After the actual tests on the grease, the machines were given a road trial of some 400 miles, at the end of which the members of the committee personally experimented with the five devices which they considered most worthy of receiving prizes. As the result of these tests the following awards have been made :—

- First prize (£100) to Messrs. Bullard, Wilderspin and Adams.
- Second prize (£50) to Messrs. Grose.
- Third prize (£25) to Mr. T. J. R. Clarkson.
- Fourth prize (£25) to Mr. W. H. Robson.

The four devices receiving the above prizes we reproduce from the *C.T.C. Gazette*. The highest award was obtained by a smooth-treaded rubber tyre, on which was sewn a narrow serpentine band of rubber. In actual manufacture this band would, of course, be moulded on the tread. The report states that the resilience of the tyre was considerably reduced by the ridges, but that the side walls of the tyre might with advantage have been more flexible.

The Grose steel-studded leather band, which received second prize, is too well known to our readers to need description. Referring to this device in the report, the committee considered that fewer studs might be an improvement, both as regards resiliency and noise on paved roads.

Mr. T. J. R. Clarkson's device (third prize) has the merit of simplicity, for it is nothing but a number of small metal bolts

ANTI-SIDE-SLIP TRIALS OF THE C.T.C.—Mr. J. Kirkland's device (No. 19) consists of wire staples embedded, "business ends" up, in the fabric of the cover. This was one of eight devices chosen by the committee as worthy to take part in the final tests.

which gripped the beaded edge of the rim of the wheel, the tyre of which was then inflated. About eight of these bands were placed on each wheel, and so far as their non-slipping properties were concerned, they seemed to be equal to the best. Several bands broke on the trial spins, and on two occasions riders were thrown from their machines by the broken bands jamming in the brake or the mudguard. They interfere very little with the resilience of the tyre, and are, of course, inexpensive, but the Committee state that they cannot recommend them except for temporary purposes.

In summarising the result of this competition, which although conducted with ordinary cycles, must, nevertheless, be of considerable interest to all motorists, the judges remark:—"We think it but right to say that in so far as the discovery of a perfect and easily applied remedy for side-slip is concerned, the competition has not realised our hopes; it has, however, demonstrated the fact that the pneumatic tyre as commonly employed might be made less liable to side-slip if suitable (though more pronounced) corrugations or ridges were moulded on the tread somewhat after the manner of the device to which we have awarded first prize. Such a modification of the existing practice would admittedly detract somewhat from the speed of the tyre, but it would not sensibly diminish the comfort of the rider, and to the thousands who put safety before speed it could not fail to commend itself. No alterations of existing rims would be called for, and tyres already in use might be fitted with bands upon which the corrugations referred to might be moulded just as the Grose band, the second prize winner, is fitted."

Albert Brown Trophy.—Confined to members of the Motor Cycling Club, this closed event was run off on Saturday last under the auspices of the club. Under the rules all machines must be entirely British-made in every part. The distance of this "non-stop" run is 100 miles before lunch and 50 miles after, a minimum and a maximum time being allowed for each 50 miles run. The route of the trial was the London-Coventry road between Redbourne and Braunston. The start was made at 6 a.m., and during the first stage five of the competitors were eliminated, viz., Messrs. Hooydonk (Singer tricar), J. Bright (Rover), A. H. Bindoff (Rex), W. A. Jacobs (Rex), and B. Crump (Ariel tricar). Miss Hinde had carburettor trouble and stopped, but she was subsequently reinstated and continued the run. Twelve competitors took part in the after-lunch stage. It was necessary, owing to the number qualified at the finish, to hold the usual

special tests, subsequent to the 150 mile run, in order to determine the winner. These tests consisted of a hill climb, a speed test, and a brake test, which took place on a very severe gradient near to Redbourne village. Pedalling was not allowed, and the best performances in these tests were made by R. M. Bryce (Brown), J. Platt Betts (Rover), and E. W. Ashworth (Lagonda). Miss Muriel Hinde, on her Singer tricar, also scored well in the hill test. As a result, Messrs. Bryce, Betts and Ashworth tied in the bicycle class, Messrs. V. Riley (Riley tricar), and Wilbur Gunn (Lagonda tricar) being equal in the tricar section. It was, therefore, necessary to run off a further speed and brake test, in which Bryce was adjudged the winner, Ashworth second, and Betts third in the motor bicycles, and in the tricar class Gunn secured the first place, and Riley the second. Miss Hinde, as the only lady competitor, is to receive a special certificate for her very admirable performance.

International Cup.—The Moto Cycle Club of France are taking into consideration the proposals made by the Austrian Motor Cyclists' Union in connection with the alteration in the rules governing this Cup for next year, to which we have drawn attention in our recent issues. In the case of Mr. Klement's suggestion of limiting the weight of the motor only, and leaving the weight of the rest of the machine to take care of itself, it is suggested that the maximum weight for the motor should be 25 kilograms. The whole of the trade is to be circularised by the French Club in order to ascertain the views of the manufacturers throughout France upon these points.

THE Tour de France in 1906 for motor bicycles, under the auspices of the Auto Cycle Club of France, has been fixed to take place during the first part of May. The distance will be increased by 500 kilometres over the present year's course. The tour will be in the north and east of France before running from Dijon over the last course. The creation of a category for voiturettes has been agreed in principle.

THE Auto Cycle Club of France Cup, which is reserved exclusively for tourist motor bicycles with a maximum cylinder capacity of one-third litre, is to be held in July, 1906. It will be run over a 250 kilometre course.

MOTOR BOATING.

Burnham Motor Boat Meeting.—By an oversight, Mr. Robinson was referred to last week as the secretary of the Motor Yacht Club. Mr. Robinson is of course the secretary of the British Motor Boat Club which held

the trials, in which capacity he was responsible for the organisation and success of the meeting. We would also draw attention to the fact that the boat illustrated at the bottom of page 1,244 represents Mr. A. G. Fentiman's "Javelin"—not "Baby Brooke," as stated.

Motor Boat Measurements.—At the meeting of the Commission of the British International Cup at Arcahon, after the recent race for this trophy, which was won by Mr. S. F. Edge's Napier craft, it was decided that an allowance of 1.5 per cent. above all class limits is to be allowed in the length of the boats for future races. Therefore the length of the boats can be 12.18m. or 39 ft. 11½ ins., which will enable them to qualify for the 12m. class.

Messrs. Mawdsley Brooke "and Co." during an interval in racing "Baby Brooke" at the Burnham-on-Crouch meeting, which wound up the season of the British Motor Boat Club.

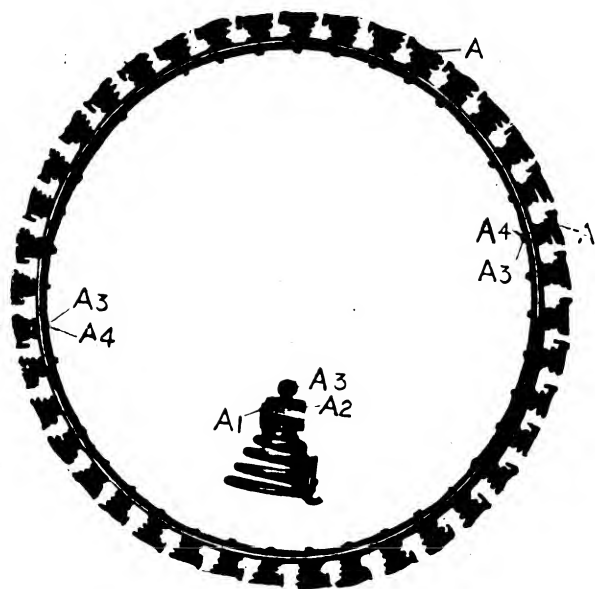
COUNT REVERTERA, accompanied by his chauffeur and a friend, for a wager, recently performed a motor run from the Rand to Cape Town, a distance of 1,200 miles. None of the trio were acquainted with the route, so that the ten days taken in accomplishing the performance can safely be said to constitute the run a good one, as considerable deviations were made through lack of knowledge. The Count drove his 6-h.p. De Dion-Bouton, which he had specially fitted to hold 18 gallons of petrol, receiving local supplies *en route*. Altogether the Count's little De Dion consumed less than 60 gallons from start to finish. The luggage, petrol, and spare parts totted up to some 700 lbs. in weight.

THE "SYRINX" SPRING TYRE.

QUITE the most drastic innovation which has yet come to our notice, in the way of mechanical substitutes for pneumatics, is the "Syrinx" spring tyre, put on the market by Mr. W. H. Robson. This is the device which has just secured the fourth prize in the C.T.C. Anti-skid Trials. No rubber whatever is employed in its construction, and, in fact, it has—in the accepted sense of the word—no tyre at all, because the numerous conical springs which project radially from the rim of the wheel, alone form that part of the wheel which comes directly into contact with the road surface.

The illustration shows a view of the rim complete, the photograph having been taken of a rim made for a motor bicycle. Within the rim is one of the springs for a motor car wheel, this spring having been photographed to the same scale as the complete rim. Below, are four larger views of one of the springs used on the rim shown above, and these serve to illustrate the construction and method of fixing which is adopted.

The springs, A, are made from steel bars of circular section and are wound in conical form ;



they are easily attached by a rivet to the spring-holders, A¹, while at the same time they are able—at their larger outer end—to obtain a good grip of the ground. The spring-carrier, A¹, is semi-cylindrical in form, and has the spring, A, riveted to it at the centre of its length. A closely-wound helical torsion-spring, A², fits into the holder, A¹, as shown, and is held in position by clips which are solid with the holder, and are bent over so as

The "Syrinx" Spring Tyre, fitted to an ordinary push bicycle.

to grip the spring, A². It will be noticed that the spring, A², is formed with an eye, A³, which is arranged to pass through a small slot in the rim of the wheel, and that there is a notched wedge, A⁴, which is pushed through the eye, A³, to secure the spring in position. When thus secured, the spring-carrier, A¹, is drawn tightly up against the rim ; a certain amount of play between these two members is, nevertheless, possible, because of the spring, A², which allows the carrier, A¹, to rock over bodily when any severe side strains are imposed.

The springs for cars are identical in design, except for the substitution of a bolt and nut fastening to attach the spring to the rim, instead of the wedge and eye device used on the smaller wheels.

Reference Letters.

A Springs.	A ³ Eye for attaching spring to rim.
A ¹ Spring holders.	A ⁴ Pin for securing spring in place on the rim.
A ² Torsion springs.	



THE SYRINX SPRING TYRE.—View of a rim complete with the Spring Tyre. Within the rim—which is for a motor bicycle—is seen a spring for use on the wheel of a motor car. Below, are four views of one of the springs fitted on the rim shown above, and these show the method of construction and attachment adopted.

More Motor Cabs for London.—A number of motor hansoms, in which the driver's seat is to be at the back of the cab—as with ordinary hansoms—have recently been ordered by the Metropolitan Motor Cab and Carriage Company. These vehicles, which are being built at Luton, will have a three-cylinder vertical engine of 12–14-h.p. placed beneath a bonnet in front, and not only is there to be ample room between the body and the dashboard for ingress and egress, but space is also being provided beneath the driver's seat for carrying luggage.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

ENGINE BRAKING.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I think Mr. Edge raises an interesting point on the above question in this week's AUTOMOTOR JOURNAL.

I expect if he still further analyses his replies, he would find a large proportion of those in favour of clutch and brakes being entirely independent, would come from hilly districts.

I have always altered all my cars in order that I can use the engine as a brake, and in a hilly country like Dartmoor I think it is almost a necessity.

It is far easier to restart on a steep hill; your pump is always at work circulating the water used for cooling the engine, and there are many other advantages.

Mr. Edge mentions "with the ignition switched off," but I think the throttle should also be made to "cut right off," else you might get your silencer full of gas, and when you come to restart you may burst it—I don't say you would on a Napier, but you would on some cars I know.

I would take this opportunity, while writing to you, to congratulate you on your "Mercedes" articles, they are most interesting.

I hope you will give us some on the new 50-h.p. 6-cylinder Napier. I have a chassis coming in about three weeks, not geared very high, and I think it will be a very fine car, judging from a trial run I had on one some time ago.

Your articles are most instructive and show up points that the ordinary motorist does not grasp at first sight.

Yours truly,
RICHARD BAYLY.

October 7, 1905.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—We have been extremely interested to read Mr. Edge's remarks anent his new discovery that using the engine as a brake, with all friction brakes independent of and supplementary to it, is the right thing. The thanks of the motoring public are due to Mr. Edge for having discovered it, although we may remind your readers and Mr. Edge that we discovered it many years ago, and have for the past four years been selling Duryea cars in this country so fitted, and have been strenuously advocating the system throughout the whole of that time. Although, therefore, Mr. Edge's discovery is nothing new—to us and users of Duryea cars—it is, nevertheless, one of some value to those who have hitherto discountenanced the system. Now that Mr. Edge says it is right, we have no doubt that that large portion of the public who accept as correct only that which is favoured by the manufacturer of a racing car, will now come to believe that, after all, Duryea was right, and that "experts," whose only idea runs in the groove of "What is, is right," may yet come to see that principle of construction which are not found on every Continental car, and have not hitherto been used on racing vehicles, may still be right.

If the conversion of Mr. Edge to correct principles, after so long an adherence to incorrect ones, has the effect of altering the construction of cars in this important particular, it will be the better for the safety and convenience of the motoring public, and although we may lose our position of monopolists in this, as in so many other particulars, we may perchance find ourselves "in the fashion," and it may even yet come about—when they are discovered by Mr. Edge or some equally prominent manufacturer—that other of our present unique principles, although differing from the "car in the street," may still receive the approbation of the "expert."

Yours faithfully,
THE DURYEA MOTOR COMPANY.

October 7th.

LONG DISTANCE RUNS ON TOP GEAR.

IN view of the interest now taken in cars that can travel long distances without changing gear, the Anglo-American Motor Car Company write us upon the subject, enclosing a copy of the following letter that they have received from a user of one of their well-known single-cylinder vehicles:—

GENTLEMEN,—As there appears to be a lot of talk just now of cars making long runs on the high gear, we thought it might interest you to know of a run we made on a Standard 8½-h.p. Cadillac Model F.

After viewing the Tourist Trophy Race, we started from Chester to make the run home (Harrow), via Wolverhampton and Coventry; we accomplished this journey (176 miles) quite comfortably in exactly

8 hours, using the high gear the whole of the distance. This, as you will see, averages 22 miles per hour, although we had to "crawl" through a police trap of about 3 miles. We might also state that we used 5 gallons and one pint of petrol, which works out at just over 34 miles to the gallon. We think this a very good performance, as the car was not prepared in any way, having run about 2,300 miles previous to this without requiring adjustment. We carried four passengers and luggage during the above run.

Yours faithfully,
A. RUFFELL.

September 27th.

"PRIVATE" ADVERTISEMENTS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Our attention has been called to the fact that an advertisement has been appearing recently in "The Automobile Club Journal," under the heading "Members' Private Advertisements," and also in the general Press. This advertisement offers for sale one of our cars which purports to have been built for H.R.H. Princess Christian.

As a matter of fact, neither the chassis nor the body of this car as advertised were built, or intended, for Her Royal Highness, and the impression which has got abroad very generally among members of the trade, as well as among private individuals, that Princess Christian has ceased to use our car and has thrown it upon the market is calculated to do us a great deal of harm.

As a matter of fact, Her Royal Highness has recently been on a tour in our car in the West of England without the slightest trouble, and has expressed herself as extremely pleased with it.

We are taking up the business very strongly with the firm of coachbuilders who have lent their name to this advertisement, as well as the owner of the car, who presumably is primarily responsible.

We trust that, in justice to ourselves, you will afford a little of your valuable space to call attention to this matter.

Yours faithfully,
JOHN I. THORNYCROFT AND CO., LIMITED.

October 9th.

GREAT BRITAIN AND AUTOMOBILES.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Mr. Edge is exceedingly unfair and unjust in his remarks in your last issue as to the position of those gentlemen who are solely interested in the importation of French-built cars into England.

I think the point which he has always argued upon has been as to the quality of construction rather than the sales of imported and home manufactured vehicles.

Everyone connected with this industry in England—whether they are concerned in the importation of foreign vehicles or not—must be gratified at hearing that England—and London in particular—is becoming the great hub and centre of the world's motor industry. I take it that it is the wish of everybody that this should be so; that all buyers should come to London whether they be purchasers of foreign vehicles or home manufactured cars.

I would like to point out that it is owing to the necessity of meeting foreign competition that British-built vehicles are as good as they are to-day, and to suggest that Great Britain is belittled because one does not accept as gospel everything one is informed by those who are engaged in the sale of British cars, strikes me as not only being small-minded, but foolish.

As being, like Mr. Edge, largely interested in the sale of foreign-built automobiles, I view with the greatest satisfaction the fact that the buying public do not now consider it necessary to go to Paris to place their orders for cars, but can make their selection—and do make their selection—of whatever make it may be, foreign or otherwise, from the London showrooms.

Yours faithfully,
CHAS. JARROTT.

October 10.

WE have received a letter from Mr. W. J. Seaton asking for information about a matter of personal interest and have, in accordance with our usual practice, replied to him by post. Our letter has, however, been returned by the Postal Authorities marked "unknown" at the address given by him.



THE Government of the French Republic are following the example provided by Ministers in Great Britain in appointing a Commission to consider what modifications of the laws regulating the motor traffic may be regarded as desirable.

AERONAUTICS.

ANOTHER example of the manner in which (almost it would seem purposely) the fury of the elements is wreaked upon constructions designed for navigating the atmosphere is provided by the unfortunate accident which occurred to Mr. Marinahis's airship, which has been constructed by Messrs. Braun & Co., of King's Cross, in a shed on open ground at North Greenwich. The airship, of the navigable balloon type, which was practically complete in every particular, was to have been officially inspected by Col. Temple on Friday in last week, but on the previous Thursday, about one o'clock, a violent storm of wind and rain, sweeping across the exposed ground at Greenwich, shattered the shed containing the airship and reduced the machine to tattered fragments in a short period. The ruin is believed to be absolutely irreparable, and a new machine, which will present several "novel features" in aeronautical construction, is shortly to be commenced by the intrepid experimenters, who possess what appears to be one of the leading characteristics of all who are at present assaying the conquest of the atmosphere—undauntedness.

ONCE more the Lebaudy airship has arisen, we cannot say from its ashes, but from the very severe wreck which was made of it in the summer by the tempest in the moment of its victorious arrival at the camp of Chalons. It has been thoroughly repaired, and gone up again in the presence of M. Berteaux, Minister of War, and under the guidance and management of the official military aeronautic expert, Captain Voyer, who, with another officer, got into the car. Though there were torrents of rain and a high wind, the airship behaved magnificently, battling its way against the storm, maintaining a regular altitude of 200 metres, and after a variety of complicated evolutions, ultimately descending at the very spot previously arranged upon.

The Olympia Show—the King a Patron.—The coming Exhibition of the Society of Motor Manufacturers and Traders at Olympia, which will be held from November 17th to the 25th, promises to be a more brilliant affair than any that have preceded it. First and foremost, His Majesty King Edward has this year consented to become Patron of the Exhibition, and the patrons accordingly now number not only His Majesty and the Prince of Wales, but the Dukes of Sutherland and Buccleuch, the Marquis of Ripon, Earl Amhurst, Earl Brownlow, Earl of Craven, Earl Fitzwilliam, Earl of Latham, and the Earl of Wilton. As already announced, the Olympia building itself has undergone considerable modification and extension, and every foot of the available exhibition space has for a long time past been engaged. There will be upwards of 300 exhibitors, of whom no less than 104 will be motor car dealers who are exhibiting complete vehicles, 35 will have commercial vehicles and delivery vans on show, and 26 will display motor bodies, the remainder being divided between carriage work, tyres, accessories, and machinery exhibits. As we recently had occasion to observe, statistics of the motor car industry show that the English market is the great market of the Continental manufacturer, and the international character of the exhibition will accordingly be well represented, no less than thirty-six foreign firms showing in the motor car section, and nine in the motor boat division. As French and other foreign manufacturers will be exhibiting their 1906 types, English buyers will not be compelled to wait till they are able to visit the Paris Salon in December before they are able to make up their minds as to what type of French or Continental car they desire to purchase. Preparations for the motor car exhibition will commence as soon as the Electrical Exhibition at present being held at Olympia concludes, on the 25th instant, and the decorations, lighting, and general effects will, we anticipate, in accordance with the great development of the Olympia Exhibition, be probably even more attractive than they were last year.

The new show-rooms of "Argylls, London, Limited," at 17, Newman Street, Oxford Street, where accommodation is available for 40 cars at one time.

Mr. Phillip Wilkins on his new 28-36-h.p. Daimler Car. Mr. Wilkins is an enthusiastic motorist, and his previous experience with a smaller Daimler vehicle has led him to again select the same make when ordering a more powerful car.

The Royal Agricultural Show.—There will be no exhibition at Park Royal next year. The edict has gone forth as the result of a recent committee meeting, held under the presidency of Mr. F. S. W. Cornwallis, at which numerous questions affecting the organisation and control of the Society were brought up for discussion. No one will be surprised at the decision, for the permanent showground has always proved a dismal failure financially. The Park Royal show was the only representative exhibition of automobile machinery exclusively applied to agriculture, and it is somewhat to be regretted that it is no longer to be held as a fixture in the vicinity of London. But as it has been ordained by the committee that the Society shall be restored to its peripatetic state, possibly this branch of automobilism will gain more by being brought to the closer notice of agriculturists in the provinces than it will lose from other causes. At any rate we hope this may prove to be the case.

Cost of Upkeep of a 12-h.p. Car.—Actual figures, showing how much it costs a motorist to keep a car, are always of value, the latest to hand being contained in a letter written by Mr. D. Losh Thorpe, of Carlisle, on the subject, after he had had his car for a year. After stating that he had experienced three punctures during the entire twelve months, but had never been stopped or delayed through mechanical troubles, he gives the following particulars of the car's performance. The total mileage amounted to 3,173½ miles, including a very wet fortnight's tour of 1,033 miles to John O'Groat's and back, and the total fuel consumption was 170 gallons. This works out at a mean consumption of one gallon for 18·7 miles. The total running expenses, leaving tyres out of consideration, is stated to have been £10 7s. 6d., which is equivalent to 785 pence (a little over three farthings) per mile. The car with which these very satisfactory results were obtained is a 10-12-h.p. Argyll.

Justifiable Retaliation.—We really feel quite unequal to doing justice this week to the number of cases more

or less absurd, and nearly all of them more or less prejudiced and unjust, in which motorists have been arraigned and, of course, fined, before Petty Sessional benches. Andover is of course still in eruption, Knaresborough is still nagging away, and St. Neots has been so annoying to several victims that revenge has been taken on the magistrates by demanding that they should be compelled to state a case, while the Motor Union is supporting an appeal to Quarter Sessions. In the meantime a well-known motorist and local magnate has taken a line which we would like to see generally adopted and which would go a long way towards taking the bloom off the peach which local authorities have discovered in the contributions to the rates extorted from automobilists. Mr. Leycester Barwell has fallen into the hands of magistrates and their "highwaymen," and has been mulcted in fines for the merely technical offence of exceeding the speed limit. He has hitherto been a liberal subscriber to local charities and other public objects,

but now when he is asked for a subscription he sends out the following circular in which the feelings of the unjustly condemned peaceable motorist are admirably expressed in a single comprehensive sentence:—

"As a victim of police persecution and a system of legalised robbery by police and magistrates, and having paid exorbitant fines and costs for the purely technical offence of exceeding the legal limit of speed by a few miles an hour on straight and practically deserted roads, timed with cheap stop-watches in the hands of interested prosecutors, whose only object was a conviction with heavy fines and costs (the offence of leaving a horse-drawn vehicle unattended on the road, or of being asleep when supposed to be in charge of same, being met by fines of half a crown or five shillings, should the police take the exceptional course of prosecuting), I am reluctantly compelled to withdraw my support from all charities, local and otherwise, including my usual subscriptions to the church, hospitals, and other deserving institutions."

AMONGST the cases referred to above must be mentioned those of Lord Alwyne Compton, M.P., and Capt. Grenfell. Both of these gentlemen fell into the same police trap along the Marylebone Road, and both, by one of those marvellous coincidences with which police traps have rendered us familiar (and upset the computations of mathematicians familiar with the calculus of probabilities) were going over the same stretch of road, at two different hours on the same day, viz., September 17th, at exactly 26 miles an hour, not a yard more and not a yard less. Lord Alwyne Compton, M.P., fell into the hands of Mr. Plowden, who happened to be the "sitting" magistrate on the day his summons was heard, and Mr. Plowden being one of the best tempered and most progressive of London magistrates, let him off with a fine of 40s. and 2s. costs. Capt. Grenfell was not so lucky. He encountered Mr. Paul Taylor, a magistrate of a different stamp, and for identically the same offence of travelling at identically the same speed (so swore the constables) at identically the same place on identically the same day, was fined £10 by the other magistrate. It is a sad commentary on justice's justice.

Examinations for Driving and Mechanical Proficiency Certificates.—Examinations will be held by the A.C.G.B.I. at the following places during October:—

Coventry	Monday, Oct. 16th	Daimler Works.
Birmingham	Tuesday, Oct. 17th	Grosvenor Cloak Room, Grand Hotel.
Manchester	Wednesday, Oct. 18th	Midland Hotel.
Sheffield	Thursday, Oct. 19th	Cutler's Hall.
Nottingham	Friday, Oct. 20th	University College.

A Motor Lochinvar.—To carry off your bride more or less *vi et armis* has appealed to the impassioned lover in all ages, and the automobile certainly provides the *vis* if not the *arma*. At any rate, that appears to have been the opinion of Lord Malden who, by means of a motor car, carried off Miss Eveline Freeman from the old Manor House at Wingrave, and married her within a few hours of the elopement, which commenced at six o'clock in the morning. The bride, immediately after the function, sent a wire to her parents, which possessed the classic brevity of the "Laconic Apothegm," to wit, "Married Lord Malden to-day—Eveline." This is certainly an up-to-date edition of the episode by which old Haddon Hall came into the possession of the Manners family. An element of romance which was wanting was due to the circumstance that there was no pursuit.

"There was racing and chasing on Cannobie Lea," and the good old Gretna Green marriages were usually celebrated a few miles in front of an irate father or brother who was pursuing in fury and a coach-and-four. When next there is an automobile elopement, we trust the stage managers will arrange to make this romantic ad libition, after which there will be room for another Scott to write a "Motor-Lochinvar."

MESSRS. PHILIP, SON, AND N have forwarded to us for inspection Maps of England and Wales. The four handy sheets mounted on line 4 miles to the inch, and are won main roads being indicated with distinctness. The four are enclosed designed for fixing on the dashboard provided with an internal spring which is opened, raises the maps in a convenient position for removal and consultation. Each map is very sensibly mounted on side of the linen backing, so as to do the size of the sheet, and the whole ought to render it almost superfluous for any motorist provided with them to ever have to ask his way, at any rate as far as the main roads are concerned. In one or two cases where we have been able to test the correctness of the by-roads, the maps, owing presumably to topographical alterations due to the lapse of time, may leave a little to be desired. But for the purposes of the ordinary motorist the maps certainly appear to be all that can be wished for.

THE President of the French Republic has extended his patron-

age to the International Congress on Automobile Touring and the controlling of automobile traffic on the roads, which is to be held in Paris in December in connection with the Paris Salon.

AN amusing case of how a motor 'bus came to the assistance of a police detective was recorded in the daily papers last week. The detective was about to arrest a gang of male and female pickpockets in the Edgware Road, when they gave him the slip into the underground railway station. Knowing the habits of his prospective prey, the detective anticipated that they would emerge at Baker Street. On to a motor 'bus which was just starting, and for once was not packed full, he accordingly jumped with promptitude, and alighting at Baker Street Station, was successful in arresting the miscreants as they emerged into the street.

A SOMEWHAT different example of a case in which the automobile came to the assistance of the police and the discomfiture of a certain poacher is reported from the neighbourhood of Kettering, where one Marlow, who had been "trespassing in pursuit of game" and had been sentenced to a month's imprisonment, escaped from the constable in charge of him, slipped his handcuffs and ran off. The constables in pursuit commandeered a passing motor car, finally captured the poacher, and safely conveyed him to Northampton prison. The poacher had previously challenged one of the constables to run him a race for £5. Doubtless he regards the way in which the constable interpreted this wager as an unfair handicap.

The above new pattern of the British Duryea Car has just been placed on the market. It is a 12-h.p. vehicle, and the tonneau at the back is constructed to hold three passengers. This particular car has been secured by Dr. J. D. Mackay, of Knaresborough, who has for the third time selected a vehicle of this make.

THE town of Bradford has always been a progressive centre, and we have already referred to the arrangements of the Bradford Technical College for providing a motor car engineering course for students. The first of the lectures was given on Wednesday in last week by Professor G. F. Charnock, an introductory discourse being delivered by the Mayor, who certainly recognises more than a good many corporation officials what the motor vehicle is destined to effect. The future development of the motor vehicle and the motor 'bus means, in his eyes, "a much cleaner Bradford than exists to-day," and he regretted that "classes such as those which Professor Charnock was now conducting had not been inaugurated some ten years ago." In that case, he thinks, "local progress would have been very much more marked than it has been."

A side view of one of the London and North-Western Railway omnibuses now in full service in Wales. These vehicles are built by the Milnes-Daimler Company, and are of similar construction to the London "Vanguard" motor 'buses.

THE Swiss gendarme and his men who happened to catch Mr. Rockefeller driving an automobile over the prohibited Tête Noir Pass are to be congratulated. Mr. Rockefeller not only immediately paid the heavy fines imposed, but entertained the gendarme and twelve men who had been commandeered to assist him, to a sumptuous dinner, a custom which is hardly likely at present to spread to the British Islands. An amusing feature of Mr. Rockefeller's adventure was that after his car was stopped and himself arrested, the police officers actually refused to allow the car to proceed further under its own power, and commandeered eight horses and the twelve men above referred to, to bring the car, together with its occupants, back to Martigny.

THE inhabitants of Eton, as becomes a town associated for so long with such an ancient foundation as the college at which most of our leading aristocrats and statesmen have been educated, and upon the playing fields of which, according to the "historian" Kinglake, the battles of Alma and Inkermann were won, is very conservative in its tendencies, and a letter has been written to the daily papers by a correspondent entitling himself "Pater Etoniensis," bitterly complaining of the noise and rumble of the motor 'buses which the Great Western Railway Company has organised to run through the town. He calls upon the authorities to insist that they shall be of moderate size and noiseless mechanism. There is something, perhaps, in the contention considering the associations of the place, though how a local authority can insist on such a provision by any means but friendly representation, it is difficult to see.

MOTORISTS are informed that the cyclist patrols of the Automobile Association will be on duty next week end from Purley Corner to Preston Park on the Brighton Road, and from Kingston to Hindhead on the Portsmouth Road. They are to be distinguished by a yellow armlet, bearing a number, and the letters "A. A.," and their instructions are to render assistance to all motor car and motor cycle drivers, whether members of the Association or not.

A Foden lorry, one of many motor goods vehicles now being employed by the London and North-Western Railway Company, in various districts, to deal with the enormous haulage business in outlying districts which the Company are developing by this means. This particular lorry, put on in July, runs between Holywell Station and the town. Holywell lies at the top of a very steep hill $1\frac{1}{2}$ miles from the station, and hitherto the average weight taken by a pair-horse team has only been 13 cwt. The new steam lorry is capable of taking 5 tons, and also a trailer with a capacity of 2 tons. So far, there has been no failure of any kind, and the daily weight carried has averaged from 15 to 18 tons. The distance covered is from 18 to 19 miles, or three complete journeys daily.

THE Mersey Railway Company is keeping pace with the other great railways in this country by establishing a road service of motor 'buses to feed their railway traffic. Ten 'buses, we understand, are now on order for the railway company, and of these four will be delivered within the next month. In general outline and appearance they resemble the "Vanguard" type of 'bus with which Londoners (with the exception of Mr. Plowden) are now so familiar.

A WAIL is wafted to us from across the Weald. That august body, the Cuckfield Rural District Council, laments that it is not so easy to obtain restriction of the speed of motor cars to ten miles an hour as they could wish. "The Local Government Board," it was stated, "put every obstacle in the way of County Councils obtaining such orders." The two applications that have been made by the East Sussex County Council have strained the finances of that august body to such an extent that they have (regretfully) announced their intention of not making any further applications. How sad!

FROM the *Board of Trade Journal* we learn that the *French Commercial Adviser* at Helsingfors reports that the "use of automobiles has for some time past been increasing in the large towns of Sweden, such as Stockholm and Göteborg." This is interesting information, though it comes by a somewhat roundabout route (not unusual) to the *Board of Trade Journal*, in the first place being from a French source, while in the second place, Helsingfors is not in Sweden at all, but is the capital of Finland. According to the French Adviser's report the best automobile markets in Sweden are the two towns mentioned, together with Malmö and Norrköping. In the north of Sweden and Finland, where the roads are not so good (as most of the traffic is done when they are covered with snow), motor bicycles are in demand, though the price which it is said they fetch, viz., £16 to £24, must be regarded as extremely moderate. For motor boats, too, on the rivers and lakes of Sweden those who are willing to sell them at from £55 to £165 will find a market.

THE *Board of Trade Journal* also calls attention to the report of the *Belgian Consulate* at Bombay. The Belgian representative points out that an extraordinary increase has recently been taking place in the number of automobiles imported into India. They are becoming increasingly popular with the native population, and in Bombay in particular, all kinds of self-propelled vehicles find a ready market, while motor cycles also seem likely to come rapidly into use.

THE first Smoking Concert of the Automobile Club takes place on the 26th inst. The club is also arranging to continue the series of evening discussions on automobile topics.

THE RIGHT HON. THE EARL OF EFFINGHAM has consented to become the President of the Sheffield and District Automobile Club.

WE are constantly receiving fresh indications of the out-of-the-way places that THE AUTOMOTOR JOURNAL finds its way to. A couple of amusing instances have been drawn to our attention by Messrs. Jarrott and Letts, one of whose correspondents, rejoicing in the name of Kofi Bu, writes from Adjah Bippo to the firm in quaint language, asking details of their cars advertised; while another, who signs himself "M. Thomas esq.," writes from Kissy, Sierra Leone, as follows:—

DEAR SIRs,—Having heard of your valuable etc. as I was reading a paper that I find in the Public way, as am reading it, then I turn the Bark of it, I saw your address on it then I said I will send for your catalogue. May you send me one of your Catalogue? Believe on me yours very Faithfully,

M. THOMAS, esq.

THE ROTHWELL DELIVERY VAN.—Among the firms who have most recently turned their attention to the construction of light commercial vehicles is the Eclipse Machine Company, who are now building one hundred delivery vans, similar to that illustrated. The frame is of armoured wood, although pressed steel will be used in future. The engine is a 12-14-h.p. Aster, and the chassis, which is of the live-axle type, is fitted with a three-speed gear-box, the gears being operated by a horizontal lever fitted on the steering column immediately below the wheel. We understand that the Company make a rule of sending an efficient mechanic with each van delivered, so that the prospective driver may receive a week's tuition prior to taking sole charge of the vehicle.

UNDER the rules of the National Association of Automobile Manufacturers in the United States, all automobile shows must receive their sanction and licence before they can be recognised by the Association. Non-compliance with this requirement penalizes all exhibitors at an unlicensed show from exhibiting at any of the licensed shows of the Association. Under this provision it was necessary, therefore, for the Automobile Club of America to obtain a licence from the Association for their "independent" show, which is to be held in the 69th Regiment Armoury, New York, as announced by us some time ago. Several of the Club authorities were averse to asking for this permission, but it was found that the firms who wished to enter for the show were too shy of getting into trouble by exhibiting without the protection of the necessary permit.

COMMERCIAL POINTS.

MOTOR cars were requisitioned to convey the Viceregal party on the recent tour in Ireland, one of which, the Clement, went through the whole trying journey without any mishap whatever. The Right Hon. John Atkinson, the Attorney-General, was particularly pleased with his experience throughout the run.

WE learn that the Continental Tyre Company propose holding a tyre-fitting competition at the forthcoming Olympia Exhibition. It will be remembered that they instituted a similar competition at the Olympia Show last year, which proved very popular, a large number of entries being received.

MR. SIDNEY STRAKER desires to give notice that he has no connection with any other firms in the motor omnibus and commercial vehicle trade other than Straker and Squire and the Straker Steam Vehicle Company, Ltd., of 9, Bush Lane, E.C.

During his recent visit to Guernsey—where he inspected the defences of the island and unveiled a South African War monument—H.R.H. the Duke of Connaught made use of the 18-22-h.p. Climax Car, seen above. The vehicle in question, which only arrived shortly before the Royal visit, was kept in commission three whole days, during which time it ran without a hitch, and appeared to give great satisfaction. It is of the live-axle type, has a 4-cylinder Aster engine, and was built for Mr. F. A. Heyl, who is, we learn, the principal motor car dealer in Guernsey.

WE regret to hear that the wife of Mr. T. W. Staplee Firth is lying dangerously ill at their residence, Upper Tulse Hill.

THE St. Neots trap, which is situated in or near the village of Buckden, is in a state of great activity, and no less than six members of the Motor Union have consulted the Secretary in regard to summonses which they have received. As a result, the Motor Union has decided to assist two of them, and Earl Russell has been briefed to appear for them before the St. Neots magistrates on the 17th instant. In addition, the Motor Union are also arranging to accord their support to an appeal to Quarter Sessions which has been lodged by one of the previous victims of this Bench, whose notoriety is now almost rivalling that of Andover itself.

ANOTHER case in which a successful defence was made on behalf of a motor omnibus, in which the charge was that of not consuming its own smoke as far as practicable. This was heard before Mr. Lane at West London Court last week. The motor 'bus belonged to the London Road Car Company, and evidence was given by the company's chief engineer, Mr. Brackenbridge, to the effect that the construction was such as to consume the smoke and that its emission was a pure accident. On Mr. Lane observing that the Council who prosecuted had called no expert evidence, their legal representative maintained that the onus of disproof rested with the defendants. "Yes," said Mr. Lane, "and they have done it satisfactorily," and he dismissed the summons with costs.

M. DUCELLIER has been awarded a Grand Prix for his well-known motor specialities at the Liege International Exhibition. This, we learn, is the first time that such a high award has been given in any exhibition for this class of manufactured article. M. Ducellier, who holds a very important position amongst manufacturers on the Continent, has usually been chosen in international exhibitions as a member of the jury, but we learn that for the Liege Exhibition he purposely declined the honour, in order to allow for once an international jury to judge his own goods, with the above gratifying result. Mr. Andre A. Godin, of Red Lion Square, W.C., is fortunate in handling M. Ducellier's goods, he being the sole exclusive agent in this country for the Ducellier motor lamps.

RECENTLY we announced that a number of 60-h.p. Mercedes chassis had been purchased by the proprietors of the Motor House, Euston Road, and that the occasion afforded an opportunity for those who were desirous of obtaining one of these famous machines. We now learn that already, with the exception of two only of these vehicles, the whole lot have been disposed of, amongst the latest to secure chassis being Mr. A. D. MacNeill, of Malling, Lewes, and Mr. D. T. Brown, of West Kirby, Cheshire. Both of these were the same model as that which the Duke of Manchester recently obtained from the Motor House.

A smart 12-h.p. car, recently built by the Swilt Motor Company, Limited, and supplied by them to the Warwick Tyre Company, Limited, for business purposes. The car is luxuriously fitted throughout and the Cape cart hood extends from end to end.

CLUBS AND ASSOCIATIONS.

Yorkshire A.C.—During October an interesting function is to take place one evening at the club headquarters in Leeds in the form of a presentation to Mr. L. Hey, the hon. secretary of the club, in commemoration of his recent marriage. Another pleasant meeting will be upon the occasion of the presentation of an illuminated address, signed by all the officers of the club, to Mr. H. R. Kirk, in recognition of the great hospitality to the members of the club and their friends upon the occasion of the first club run of the season to Windermere, when nearly one hundred members and friends were present.

A FURTHER lengthy list of makers and agents who have sent in returns to the Society of Motor Manufacturers and Traders for the purpose of the Royal Commission on the Motor Car Acts, has been received, enabling the Society to further add to their splendid list of statistics previously obtained. All those directly interested in the industry who have not already made returns should do so without a moment's delay, as the Commission commences sitting next week.

THE Ilford and District Motor Club have changed their name to the West Essex Automobile Club.



AN important departure is being made by the English Darracq Company, who we understand have secured very extensive premises in Lambeth, for the manufacture of the Darracq car.

NEGOTIATIONS are in progress whereby the Sirdar Rubber Company propose acquiring from Messrs. Applegate, of Greenland Mills, Bradford-on-Avon, their premises for the purpose of establishing a rubber tyre factory in that ancient centre of the cloth industry.



BRITISH EXPORTS AND IMPORTS OF MOTOR CARS, &c., FOR 1905.

NOTE.—For 1904 comparative figures see full table for the year in our issue for January 21st, page 91.

Imports.

1905.	No. of Cars and Value.	Parts Value.	No. of Motor Cycles and Value.	Parts Value.
		£		£
January ...	362	149,578	57	1,842
February ...	431	195,978	102	3,748
March ...	560	239,091	152	5,369
April ...	544	225,012	192	6,477
May ...	728	327,008	280	8,274
June ...	557	259,359	211	6,581
July ...	675	277,738	212	6,931
August ...	505	230,568	116	3,912
Sept. ...	399	160,318	73	2,586
Total ...	4,761	2,064,650	1,395	45,720
		633,601		16,554

NEW COMPANIES REGISTERED.

Argylls (London), (Limited), 17, Newman Street, Oxford Street.—Capital, £20,000 in £1 shares. Object, to enter into an agreement with Argyll Motors (Limited), to act as selling agents for that company in London and elsewhere. First directors, E. H. Watson (chairman and managing director), W. A. Smith, and A. Govan.

Alfred J. Farrah (Limited).—Capital, £1,500 in £1 shares. Object, to acquire the business carried on at 9, George Street, Hull, as Alfred J. Farrah, of motor and other cycles, cars, &c. First directors, A. J. Farrah, Mrs. J. Farrah, and W. R. McBride.

Motor Roads (Limited) (Guernsey Company).—Capital, £150,000. First directors, G. W. Breffit, S. Barber, G. Shenton, R. Jarvis, A. Smeed, H. C. Potts, and F. E. Potts.

New Arrol-Johnston Car Company (Limited).—Underwood Road, Paisley.—Capital £100,000 in £10 shares. Object, to acquire and carry on the business of the Mo-Car Syndicate (Limited). (Scotch Company.)

Pneumatic Piston Tyre Company (Limited).—Capital, £60,000 in £1 shares. Object, to acquire certain patents for pneumatic tyres, and to adopt an agreement with F. G. McKim and J. M. Lennard. First directors, C. E. De Wolf, W. C. Clark, J. Todd, and J. F. W. Lennard.

The Suburban Motor Omnibus Company (Limited), Richmond Place, Main Street, Wishaw.—Capital, £2,000 in £1 shares. (Scotch Company.)

Quite recently (on Sept. 16th), we gave an illustrated description of the very well-considered automatic lubricator, which the Albion Motor Car Company are now manufacturing, and are fitting to their own cars. The photograph reproduced above shows a complete lubricator of this type, a working model of which can be seen at the London showrooms of the sole concessionaires in England and Wales for Albion Cars.

1905.	Exports, British and Irish make.				Foreign and Colonial Re-exportation.			
	No. of Cars and Value.	Parts Value.	No. of Motor Cycles and Value.	Parts Value.	No. of Cars and Value.	Parts Value.	No. of Cycles and Value.	Parts Value.
		£		£		£		£
January ..	77	25,590	58	2,026	50	19,006	8	214
February ...	62	20,209	63	2,389	79	39,772	2	54
March ...	49	14,749	46	1,471	36	20,783	14	290
April ...	55	16,590	46	1,459	38	19,697	8	369
May ...	55	15,670	60	2,181	17	8,572	1	60
June ...	59	16,797	83	2,286	20	11,491	17	512
July ...	59	23,295	52	1,791	50	15,419	6	177
August ...	88	33,239	64	2,177	75	40,362	3	105
Sept. ...	129	47,110	52	1,796	58	29,686	2	110
Total ...	633	213,249	524	17,576	423	204,788	61	1,891
		80,315		9,974		34,622		717

Omnibus "Cow-Catchers."—A most unfortunate accident occurred recently in the Charing Cross Road, when one of the employees of the Alhambra in attempting to get on to an ordinary horse 'bus fell into the road, and was caught by one of the Vanguard motor 'buses, suffering injuries to which he subsequently succumbed. The coroner's jury which considered the case absolved the driver of the motor 'bus from all blame, and suggested that in future "cow-catchers" should be employed on the fronts of motor 'buses. To this the coroner objected that their presence would be likely to enable drivers and others to claim an exoneration to which they would not be otherwise entitled—a view with which we certainly cannot agree, as no motor driver would ever rely on the "cow-catcher" to prevent an accident. He would in any case do his best, but when his best failed the "cow-catcher" might just make the difference between survival and death.

A NEW garage and repair works, fitted with all modern appliances, has, we learn, been opened in Brighton, under the title of the North Brighton Motor Garage, at Park Crescent Place. The premises are to be open day and night for repairs, and efficient workmen will always be ready on the premises.

POLICE PROCEEDINGS.

Motoring Schools and Premiums.—George Stephenson, 27, described as an engineer, of Royal Avenue, Chelsea, was last week charged, on a warrant, before Mr. Curtis Bennett, with being concerned, with another man, not in custody, in fraudulently obtaining premiums from young men, under pretence that he would teach them the motor car business and find them situations.

When apprehended by Detective Cock, and told that young men complained that sums of five guineas had severally been obtained from them, prisoner said he had not conspired, but had been co-partner with one Allen Glen in the Buckingham Gate Garage and Engineering Company.

Cross-examined by Mr. Wildey Wright, appearing for accused, the officer said he understood that some of the complainants had received lessons, and he was not aware that Stephenson left suddenly for the country to obtain money to satisfy a claim for which the sheriff had levied.

Inspector Fuller asked for a remand, as the police hoped to make another arrest. There were altogether about twelve complainants.

Mr. Wildey Wright said there was an absolute answer to the charge. Within the last two months defendant had expended £500 of his own money in satisfying the liabilities of the company. Defendant could not go on with the lessons to pupils as arranged, but he intimated that they would be resumed.

Mr. Curtis Bennett remanded the accused, stating that he would accept bail in £100, with notice to the police.

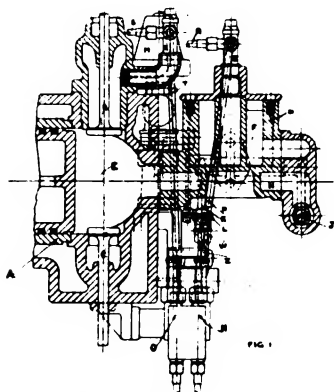
BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

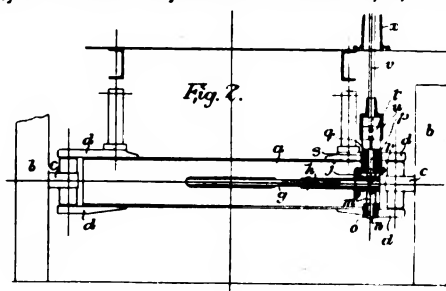
23064. 26th October, 1904. Improvements in Internal Combustion Motors. James Dunlop, 69, Armadale Street, Dennistown, Glasgow, and Messrs. Kynoch, Ltd., Lion Works, Witton, near Birmingham. This invention relates to that class of motor in which oil vapour mixed with air forms the combustible charge. The oil to be vaporised is supplied to an outer chamber along with a small quantity of

lifted, and the lever, W, will then be unable to open the vapour valve, J, and thus the engine speed will be reduced again owing to want of vapour to keep it in action until the governor will fall, and by the insertion of the die, L, will enable the lever, W, once more to operate the valve, J. Operated by the lever, K, acting through the medium of a bell-crank increases beyond the normal the die, L, will be

top pivot pin, p_1 , is adapted to rotate within the hollow boss, q , of the bevel pinion, r , which gears with the pinion, j . The boss, q , of this pinion is rotatably supported in the bracket, s , carried by the axle, a . Attached to the boss, q , of the pinion, r , is one part, t , of a slide, the other part, u , of which is secured to the steering-wheel spindle, v . The steering-wheel, w , rests on the top of the steering-pillar, x , which is carried by the frame. The slide, t , allows of relative vertical motion between the steering-wheel spindle and the pinion, r , but forces the pinion, r , to rotate with the spindle, v . Consequently, when the steering-wheel is rotated, rotary motion is given to the pinion, r , and transmitted by it to the pinion, j , which being held from axial movement in the bracket, m , gives an endwise motion to the steering-rod, g . This, by means of the arms, e , and link, f , gives angular movement to the two steering-wheels. The parts, t and u , of the slide are made an easy fit one with the other, so that it not only allows of relative axial motion between the pinion, r , and the steering-wheel spindle being put slightly out of line with the axis of the pinion, owing to the jolting and vibration of the axle.—September 20th, 1905.



air, and owing to the heat transmitted through the walls from the inner chamber the oil is vaporised without the necessity of using a lamp except when starting the motor. Between the outer and inner chambers is placed a valve which opens towards the inner chamber to admit the oil vapour and air to the combustion space of the motor. The inner chamber constitutes the ignition apparatus of the motor, the heat generated by combustion being such as to maintain the surfaces of the chamber walls at such a temperature that ignition of the charge takes place by contact with these surfaces when and so soon as the charge has had a certain temperature imparted to it by compression. Water is admitted to the cylinder and forms part of the working charge with the object of controlling the time of ignition. There are two figures. Fig. 1 is a vertical sectional elevation of the rear part of the engine. A is the motor cylinder with the admission valve, B, and exhaust valve, C. These valves are operated by any usual means. The vaporiser, D, is placed at the back end of the combustion space, E, and has an outer chamber, F, provided with an oil feed bypass valve, G. The inner chamber, H, has a vapour valve, J, opening towards the combustion space, E, this valve being operated by a lever, K, through the medium of a die, L, and a reciprocating lever, W, with attached knife edge which engages with the die, L, and opens the valve, J, whenever the governor, M, is in the lowest position, that is when the engine is running normally. When the speed



lever, Z, are an oil pump, N, and a water pump, O, and at such times as the vapour valve, J, is rendered inoperative these pumps will be inoperative also. The oil pump delivers oil to the by-pass feed-valve, G, by a pipe, P, any surplus oil being returned to the pump suction tank by a pipe, Q. The water pump delivers water to the by-pass feed-valve, R, attached to the air admission valve chamber, any surplus water being returned to the pump suction tank by a pipe, S.—September 20th, 1905.

6196. 23rd March, 1905. Improvements in Steering Gear for Self-propelled Vehicles. Messrs. Beyer, Peacock and Co., Limited, Gorton, Manchester, and Henry A. Hoy, General Manager of the Company. The object of this invention is to cause the non-rotating axle to take up the shocks transmitted along the steering rod, which shocks are caused by irregularities or obstructions on the road or track over which the vehicle is passing; also to allow of a relative movement between the steering wheel or handle and the axle, so as to prevent shocks and vibrations in a vertical direction being transmitted to the steering-wheel or handle. There are ten figures. Fig. 2 is a part sectional front elevation. a , is the non-rotating axle which is of H-section. The steering wheels, b , b_1 , are carried each on a short spindle, c , which is pivoted to the brackets, d , d_1 carried by the axle, a . The spindles, c , are provided with steering arms, e , e_1 , which are connected together by the link, f . The steering rod, g , is pivoted at one end to one of the steering arms, while at the other end it is screwed to engage with the internal screw in the long sleeve-like boss, h , of the bevel pinion, j . This bevel pinion is supported in a swivelling-bracket, m . The pivoting-bracket is provided with two pivot pins in alignment with one another. The lower one, n , is pivoted directly in the bracket, o , which is carried by the axle, a . The

Patent Specifications Published.

Applied for in 1904.

Published October 12th, 1905.

- 24,331. C. H. STAFFORD. Motor cars.
- 24,376. W. G. CLIFTON. Clutch mechanism.
- 24,841. E. T. CLEATHERO. Friction clutches.
- 24,949. C. H. WILKINSON. Non-skidding devices.
- 25,046. C. E. SIMMS and E. J. BLAKEMORE. Petrol motors.
- 25,157. J. W. SEAL. Two-stroke cycle intl. combn. engines.
- 25,309. TAR MACADAM (PURNELL, HOOLEY'S PATENT) SYND., LTD. Apparatus for use in the preparation of "tarred" slag, &c.
- 27,322. C. W. H. SCOTT. Car and boat fittings.
- 27,793. J. S. CUNDALL and others. Explosion timing device.

Applied for in 1905.

Published October 5th, 1905.

- 9,642. J. B. D. M. MALZIEUX. Carburettors.
 - 9,643. J. M. ZWASCHKA. Running gear.
 - 11,449. H. MERCIER. Automatic change-speed-gear.
 - 12,590. K. MANN. Electrical igniters.
 - 14,135. A. HERINSON. Friction clutches.
 - 14,729. C. V. KNIGHT and L. B. KILBOURNE. Intl. combn. engines.
- Published October 12th, 1905.
- 981. T. GARE. Wheels.
 - 1,282. A. C. F. DANN. Change-speed-gear.
 - 2,290. W. H. A. ROBERTSON. Tubular boiler.
 - 3,130. H. REID and J. REIKIE. Starting gear.
 - 4,223. L. WILSON. Starting and reversing gear.
 - 4,525. L. E. MAHOUT. Intl. combn. engines.
 - 5,927. F. H. BOWLY and D. J. RUNYON. Elastic tyres.

THE AUTOMOTOR JOURNAL

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Circulates amongst Makers and Users of Motor Cars, Cycles, etc., in the United Kingdom, the Colonies, and the Continent.

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THE AUTOMOBILE IN THE MALAY STATES.—The use of the automobile is particularly appreciated in such countries as the Malay States. We have received the above interesting photograph from Mr. G. Dearie Russell, the Hon. Secretary of the Federated Malay States Automobile Club, who communicates with us from Kuala Lumpor, Selangor. We learn from him that there are no less than about 35 cars in constant use in Selangor where the roads are in very excellent condition and afford every facility for motoring. The owners and the cars in our picture are, reading from left to right, G. D. Lucas, 6-h.p. De Dion; Claude Severn, 16-h.p. Albion; Sir William Taylor, K.C.M.G., 8-h.p. De Dion; William Small, 8-h.p. Albion; A. K. E. Hampshire, 6-h.p. De Dion; Lee Kong Lam, 8-h.p. De Dion; W. E. Kenny, 6-h.p. De Dion; L. F. Brown, 5-h.p. Baby Peugeot; G. D. Russell, 10-h.p. De Dion; J. H. M. Robson, 10-h.p. Stevens Duryea.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Oct. 21 ...	Passenger Motor Cycle Trials (Auto-Cycle Club).
Oct. 25 ...	"Mechanical Reminiscences and Roadside Experiences," by Hon. C. S. Rolls (Ladies A.C.).
Nov. 8, 15, 22, 29, Dec. 6, 13	Six Practical Lessons on Motor Cars (Ladies' A.C.).
Nov. 10 or 17	*Quarterly 100 Miles Trials.
Nov. 17-25 ...	Society of Motor Manufacturers and Traders Exhibition at Olympia.
Nov. 25 ...	North London A.C. Annual Dinner.
Dec. 4 ...	"Explosion and Flame in Relation to Motor Car Engines," by Dr. W. R. Ormandy (Manchester A.C.).

Foreign Events (Trials, Races, &c.).

1905.	
Oct. 22 ...	Maisons-Laffitte Motor Boat Races (L'Auto).
Nov. 3 ...	French Voiturettes Trials (L'Auto).
1906.	
Jan. 26-30 ...	Calcutta Motor Trials.
April 1-15 ...	Monaco Motor Boat Exhibition and Races.

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

"Folly . . . Controlling Skill."

IN 1903, the Commission on London Traffic commenced its labours, and in July, 1905, it issued its report. We commented at the time on the main features of this document, and drew attention to the very pessimistic attitude adopted by the Commissioners to the motor 'bus and its potentialities for dealing with London traffic, and to the extraordinary suggestion that the best way of dealing with the problem was the indefinite extension of the electric tram. After they had been at work for a year, the Royal Commissioners appointed, to assist them, three celebrated engineers, Sir John Wolfe Barry, Sir Benjamin Baker, and Mr. W. Barclay Parsons, and the report which these engineers put before, what a morning paper not inappropriately terms "the *inexpert* members of the Commission," has now been published. As was to be expected from technical men, the views put forward in this report are altogether different as regards the capabilities of the motor 'bus.

"If it be found," they say, "that these vehicles (motor omnibuses) can be economically worked and maintained at the speeds given, we think they will have an important bearing upon the transport of passengers in London, and may affect the consideration of railway and tramway policy."

and they add that

"the construction of tramways will not remove the congestion of the streets."

They bring hard figures to support this point of view.

The average speed of vehicular traffic during the crush and slack hours of the day has been taken, and these are the results :—

	Crush Hours.	Slack Hours.	Speed in Miles per Hour.
Motor omnibus ...	6½-8½	8½-11½	
Horse omnibus ...	3½-6	5½-8	
Electric tramway ...	5½-7	8½-11½	

From this it appears, therefore, that the motor 'bus is a vehicle which, without any previous disturbance or permanent alteration of the streets along which it runs, is able to deal with the traffic at almost precisely the same rate of speed during the slack hours, and at a very considerably better rate of speed during the more important crush hours than the electric tram. These views, it must be borne in mind, were come to some time ago, before the motor 'bus had given the satisfactory demonstration of its reliability and capacity for steadily dealing with the traffic of London streets, with which, during the past few months, we have all become satisfactorily familiar.

The situation possesses elements of humour. Here we have a body of gentlemen appointed by Government to enquire into and report on an important problem. After a year they find themselves unable to do without expert assistance, and they call in, very wisely, the best expert assistance they can obtain. And then when it comes to issuing their report, they pass over the views of their own technical advisers on one of the most important issues, and present a report which totally ignores the motor 'bus, and puts forward the electric tram as the one universal panacea for diminishing the chaos of our London streets. Unfortunately in this country, we are not unfamiliar with this sort of thing, and there is at any rate one great State department which is systematically accused of obtaining expert advice only to ignore it. Little good to the community is likely to result, when in this way "folly" is allowed to "control the skill."

Let Sauce for the Goose be Sauce for the Gander.

THE relative speed figures quoted above prove that the motor 'bus is a more efficient means of locomotion, and deals with the traffic of London more successfully than the electric tram is able to do, particularly during the "hours of most crowded life." This is, of course, what anybody gifted with common sense would have predicted, and is merely a further illustration of the disadvantage, even to the trams themselves, on which we have always insisted, of being confined to a definite track. And there is another aspect which the engineers seem to have omitted to mention. That is the much smaller extent to which motor 'buses delay other traffic than the electric tramcars do. To those who have been compelled to witness (with rage or cynical amusement according to temperament) the procession of sometimes as many as twenty trams closely jammed together in the neighbourhood of the Elephant and Castle on each line of tramway, and the ineffective attempts of all other traffic to get by them, will realise this to the full. But the chief conclusion to which these revelations in regard to the relative speeds of trams and motor 'buses point, is that our executive should insist on fair play. The motor 'bus is limited by law to a speed of twelve miles an hour, and this speed in point of fact it practically never exceeds, in spite of which handicap its average is better than the tram average. The tramcar is similarly limited by law to a speed of ten miles an hour, and whenever it has a free run it invariably

exceeds it, not by a trifle, but often by 100 per cent. That trams regularly and frequently run at speeds approaching twenty miles an hour was demonstrated by the amusing prosecutions instituted some time ago, in which, by the way, the magistrates imposed merely nominal penalties. Now the motor 'bus is a new and enterprising suitor for London traffic, and there is no doubt, as its present popularity shows, that its ultimate success would be hailed with satisfaction by every Londoner. It must be regarded as a very high testimonial to the general efficiency of the motor 'bus that it can maintain so high an average speed without ever having to indulge in excessive speeds to do so. Such a method of driving, too, must obviously be more beneficial to the upkeep of the vehicles.

The Royal Commission on Motor Traffic.

THE Royal Commission on Motor Traffic commenced its sittings on Monday last with Lord Selby in the chair, and all the other members duly in their places. The sitting was a formal one, and after considering the situation the Commission decided that they would not permit reports of the proceedings taking place before them to be published in the Press. On the whole we think that the decision the Commission have come to on this point is a wise one. No doubt their report, when presented, will be accompanied by an adequate *précis* or summary of the evidence put before them, and the public will then be able to judge the whole case on its merits without the confusion and false impressions which are likely to occur when persons not accustomed by training or education to take a judicial view of a situation, are presented piecemeal and in detail, with the pros and cons of an argument on which a good deal has been felt, and much more said and written. There has been much acrimonious feeling on the whole automobile question, excited in the opposing camps, and it would be for the benefit of nobody that the acrimony should be increased. This, however, would almost unavoidably happen should the evidence and arguments placed before the Commission be published from day to day as given. When the automobile arguments were being put forward the opponents of the movement would be furious, while when the members of the Highways Protection Association and their sympathisers were in the witness box, the feelings of automobilists would almost certainly be on edge. It is well, therefore, that the public knowledge of what is brought forward on either side should be delayed until both sides can be presented together.

A Hope Fulfilled.

WE last week ventured to express the hope that the Automobile Association would extend its beneficent activity to other districts beside the Portsmouth and Brighton roads, where it has already performed such excellent service. In fact, so well has it done its work on the Portsmouth road that we believe the police in that neighbourhood have been able to return to their ordinary duties of looking after property and preventing ordinary offences, with the result that Lord Onslow and others living in the district can cultivate their cabbages without fear or trembling. We are delighted, therefore, now to learn that the Association are extending their organisation of cyclists, scouts, and patrols to the Andover district. The result, we have no doubt, will be highly delectable to Colonel "Handover"

Harmer and his associates. They will to a large extent doubtless be relieved from what must be to them the disagreeable and distasteful duty of convicting such large numbers of gentlemen belonging to a class not usually accustomed to appear in police courts, and monotonously raking in large sums in fines for the relief of the local rates. In fact, we hope to see the operations of the Association so successful, that the "Hand-over" Bench will, at an early date, cease to be an exchequer paying-in office in relief of the local taxation, and will be able to devote its undivided attention to the gypsies, "drunks," casuals, and poachers, which previous to the advent of the automobile, formed the bulk of the clients of that august assemblage, and with which, from all that can be seen of their deliberations, they are specially, if not solely, fitted to deal.

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An Effect of the Motor 'Bus.

THE question as to whether the taximeter should or should not be introduced on the London cab has been discussed for quite a period of years, though they have been in use in Paris and in the principal towns of Germany for ten years or more. But, until recently, there has been no indication that the subject was ever likely to emerge from the stage of palaver into that of actuality. This, however, it at length really seems to be doing, and there can be little doubt that the change is due to the effect upon the cab trade of the motor 'bus. Along all the routes served by motor 'buses, it has been demonstrated satisfactorily that the motor 'bus is quicker than the cab, and the general recognition of this fact, added to the rivalry of the "tubes," is having a disastrous result for the cabman. At present, the men seem to be standing out against the introduction of the taximeter, but we believe in doing so they are standing in their own light. Possible customers are but too frequently prevented from hiring a cab by uncertainty as to what the real fare is, and the fear that they will be considerably overcharged or over "language'd." The taximeter removes all causes of dispute, and by doing so would certainly increase here, as it has done abroad, the number of the cabman's possible patrons. Under the competitive conditions which the motor 'bus has established, and is daily accentuating, it is essential for the horse cab industry, if it is to keep its head above water at all, to remove every cause which may by any possibility diminish its popularity. The best solution for the cabmen, however, is obviously to become motor cab drivers.

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The Speed which a Car should Attain.

IN our present number we bring our articles on the Tourist Trophy question to a conclusion, including a table which we venture to hope will provide data of considerable interest to all owners of cars, and particularly to all who may desire to take part in, or to assist in organising, competitions on Tourist Trophy lines in the future. The table, which is the outcome of a large amount of calculation and practical experiment, will, together with the description and explanation which accompanies it, enable anyone to see at a glance (a) what speeds an average car with average load, and either a 13½, 18 or 22½-h.p. motor, can attain on any gradient of road of ordinary surface, either uphill or downhill; (b) the tremendous effect played by wind resistance in deter-

mining and limiting car speed—a point on which we believe that little concise data have hitherto been available; and (c) the great increase in fuel consumption which, as the result even of wind resistance alone, is occasioned by driving cars at high speed.

In addition to being of interest to the classes of readers we have indicated above, our figures will, we are sure, be found useful by the majority of car owners and drivers, for they provide in short compass significant information that is applicable in large measure to their own cars, and cannot but prove both instructive and useful to them. There are many consequences that will be found to emerge from the figures in the table. It would be impossible here to enumerate them all, but as an instance of their value, we may point out that any car owner who possesses an automobile of either of the three powers given, will be able, by the assistance of the table and by simply driving over a suitable stretch of good road, to ascertain whether the performance of the car is what it ought to be—and if he is driving it properly; the total weight of the car at the time should of course be that on which our figures are based, and its cross-section must be about that taken by us. A striking confirmation of the general correctness of our figures, and the *data* on which they are based, is afforded by their application to the Tourist Trophy Course in the Isle of Man, the result being that the speed shown to be attainable is almost exactly that which was in point of fact actually accomplished by the leading vehicles this year.

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Petrol Engines for France to be built at Glasgow.

—An important agreement has been concluded between the Argyll Company, of Glasgow, and the Aster Company, of Paris, by which the former firm will in future build Aster engines, at their new works at Alexandria, for use in Argyll cars, and also for the Aster Company. In order to ensure that these engines shall be in every respect identical with the products of the French firm, the two companies concerned have arranged to obtain their materials from the same sources, and a staff of specially-selected French workmen are coming over from Paris to Alexandria to operate the new plant that is being laid down. Thus, though made in Scotland, the Aster-Argyll engine will be, down to the smallest detail, the same as the Aster, hitherto constructed exclusively in France. The agreement may be regarded as a fitting culmination of a long and mutually satisfactory business connection between the two firms. Even in the past, we learn that the French company have often been glad to adopt the many useful suggestions made by Mr. Govan—the managing director of Argyll Motors, Limited—for further improving the latest models.

The Argyll Company were amongst the first to recognise the merits of the Aster engine, and for a considerable time they have been one of the Aster Company's biggest customers. It is significant of the French firm's confidence in the new arrangement that they have placed with the Argyll Company an order for Alexandria-made engines for Paris. The Argyll Company and their predecessors, the Hozier Engineering Company, have used many hundreds of Aster engines, and the new arrangements will be a guarantee that their good qualities and distinguishing features will be fully maintained. It is also a decided triumph for British industry.

THE BRITISH ARMY AND MECHANICAL TRANSPORT.— PART III. *(Concluded from page 1267.)*

Military Lurries.

IN civilian life, the motor lorry is proving a great boon, but in the Army its advantages are less conspicuous, because it has another mechanical rival in the independent traction engine, and it has not, therefore, merely been required to supplant horse-traction at first-hand as it has done in civilian life. At home, for use in the neighbourhoods of permanent camps, where there is considerable transport work to be done by road, the motor lorry is in its element, and several of them are employed at Aldershot and elsewhere to great advantage. For field work, however, they suffer from an inherent disadvantage, viz., that the engine cannot be instantly disconnected from its load *en masse* for temporary purposes. The importance of this drawback may not be at

quantity of stores whose aggregate load is within the capacity of one engine may have to be delivered at several different places, and if those materials can be subdivided into separate wagons then an entire wagon can be left at its destination to be unloaded whilst the remainder of the train proceeds to the next station.

Present Developments.

At the present day the comparatively small traction engine is receiving greater favour than the very heavy machine, and the reasons why this should be so are not far to seek. The demands of transport are naturally of a very variable character, and it is impossible to ensure that the bigger machines shall always be used under reasonably efficient conditions, as the following incident

THE BRITISH ARMY AND MECHANICAL TRANSPORT.—The breakdown gang which form an independent section of the repair train. In the wagon, on the extreme left, are lifting-jacks, fair-leads, and other small tackle useful in breakdown repair work. A large portable gin is visible in the centre of the photograph, and the traction engine is fitted with a powerful gib crane and a winding drum. The method of anchoring the capstan, shown in the foreground, is interesting, the pull being taken in any direction by a systematic arrangement of fair-leads also anchored to the ground in suitable positions.

first sight apparent, for it has to do with a difficulty—not previously mentioned—which is frequently met with in military transport. It may happen that a transport train gets stuck in particularly unsuitable ground, where the engine is powerless to move its load. Any separate tractor can be easily uncoupled from the train, and the chances are that it will be able to extricate itself from the difficulty, and to assume a position on firm ground, where it will be able to haul up each unit of the train by the aid of its winding drum. If a self-propelled lorry gets into a similar plight there is no alternative but to unload, which is not only a lengthy process by itself but of little advantage to the situation when accomplished; for although the lightened machine may, and in all probability will, get free, there is no means of re-loading except by carrying the stores piecemeal after the lorry. There is another point, too, in connection with dividing the load from the engine which is very important. A

in the South African war will show. It happened to be necessary to transport a load of 5 tons to a certain place without a moment's delay. The only traction engine available weighed 20 tons, and was capable of dragging, under suitable conditions, a useful load of 40 tons. At the time there was nothing else which required to be despatched in that direction, so the 20-ton engine, with its full complement of men, was sent out with its 5-ton load. This it safely delivered at the other end, and then it happened to fall into a ditch, and another engine had to be requisitioned to get it out. This incident throws considerable light on the question of army transport, because it forms such an admirable illustration of at least two very important phases. One of them, viz., the inefficient use of such large engines, has already been mentioned, the other is the lesson which it teaches as to the undesirability of allowing any transport engine to go out alone lest it should get into a difficulty from which

soon turned their serious attention to the requirements of the War Office Committee is in itself sufficient evidence of how important this branch of automobile construction may become to the industry.

Experience will show in what other particulars the internal combustion engine is superior to the steam engine, but it is, of course, in the greatly increased range of action which this type of tractor affords that its importance, from a military point of view, is at present centred.

When such an engine reaches a thoroughly satisfactory state—as there is every reason to hope it will do in the near future—then, in all probability, a new era will begin in the annals of Military Mechanical Transport.

THE BRITISH ARMY AND MECHANICAL TRANSPORT.—One of the workshops belonging to the first section of the repair train. The apparatus in the centre of the wagon is an "H.F." vulcaniser for the repair of the pneumatic tyres used on the officers' motor cars.

NOTE.—For the more important references to Military Mechanical Transport, and the heavy oil engines specially constructed for the purpose, see *THE AUTOMOTOR JOURNAL*, Vol. VIII., pp. 1108, 1334; Vol. IX., pp. 36, 853, 863; Vol. X., pp. 384, 448, 507.

it cannot extricate itself without the aid of another machine. Lightness, therefore, is apparently a most desirable feature in each unit of a transport train, and if what weight there is can be made not only useful in that it represents stores, but useful also for the purposes of transport, so much the better for efficiency of the train.

These and other questions relating to the development of mechanical transport are in the hands of a War Office Committee, which is presided over by Col. Clayton, and of which the Secretary is Major Lindsay Lloyd. The energies of this Committee, which has already done such good work, are at the present moment mainly centred in obtaining a thoroughly suitable internal combustion engine. This engine, needless to say, must use kerosene, and not petrol, as its fuel. Already Messrs. Thornycroft and the Wolseley Company have engines of their own—of which descriptions have appeared in these columns—under official trial at Aldershot, and the mere fact that two such firms of repute should have so

THE BRITISH ARMY AND MECHANICAL TRANSPORT.—The Machine Shop of the Repair Train. This wagon contains a large lathe and a milling machine, which are, like all the other machine tools in the train, electrically driven.

The Smoke Consuming Puzzle.—It is satisfactory to note that common sense is beginning to make itself more and more felt in magisterial decisions on motor car questions. At any rate this is so with regard to stipendiary magistrates, who, needless to say, are as a rule less prejudiced, and take a more judicial view of cases put before them than is customary with the "great unpaid." An example in point is provided by a case tried recently before Mr. Plowden at Marylebone Police Court, where the London Road Car Company was summoned at the instance of the County Council for, it was alleged, running one of their motor 'buses which did not as far as possible consume its own smoke. It was stated when the case was brought on that on precisely similar evidence to that which would now be tendered, Mr. Denman, the "Rhodamanthus of Marl-

borough Street," and Mr. Lane, of West London, had respectively convicted and acquitted. Mr. Plowden smilingly observed that this put him in a difficulty, as in that case it would be impossible for him to agree with both of the learned magistrates, and evidently feeling himself thus free to take a common-sense view of the situation, he "found that the fumes complained of were fugitive and temporary, and therefore came within the exemption clause." He accordingly dismissed the summons, giving two guineas costs, this award of costs being not the least significant point in Mr. Denman's action.

The motor lurry has at last entered into the Yarmouth herring industry, and a petrol lurry, capable of carrying 1½ tons, is now in service in that town for carting fish.

THE 1905 ARGYLL CARS.—PART II.

(Continued from page 1260.)

IN our last issue, we gave some important information concerning the great progress recently made by the manufacturers of these very successful cars. The special features of the standard models were also mentioned, and we briefly enumerated the various types that are now being supplied. We now proceed to deal with the details of construction.

Side view of the 16-20-h.p. Argyll Car, fitted with the standard side-entrance body.

The Main Frame.

The side members, unlike those of most pressed-steel frames, have a cross-section resembling an inverted U, but it is a "U" having practically square—rather than rounded—corners. They are thus particularly well adapted to resist the strains that are imposed upon them in practice, and they also have many advantages from a constructional point of view. Tapering off back and front, from the centre, the greatest depth is where it is most required, and it is only necessary to curve the projecting ends downward in order to make them form the brackets for the side springs. Side members of this shape give to the frame, moreover, a very neat external appearance when the car is completed. In front, the cross-member is given a suitable bent shape to pass beneath the radiator, thus allowing a radiator of large size to be used, and all Argyll frames have at least one substantial intermediate cross-member, which lies just behind the clutch, and supports its "driven" shaft; in Fig. 1, which represents the 24-h.p. chassis, is seen a second intermediate cross-member just behind

the gear-box. Between the radiator and the frame, felt packing is introduced to form a soft cushion. In all cases, the engine and the gear-box are fixed direct to the side members, and consequently no under-frame is needed.

As usual, semi-elliptic side springs of considerable length afford the necessary suspension for the frame; those at the rear, which lie outside, have shackles at both ends. At each side there are radius rods to tie the back-axle to the frame, these rods relieving the springs of the torsional strains that are set up in all axle-casings both by the "drive" and by the brakes.

The Front Axle.

In Fig. 3 as well as in Fig. 4, the front axle is well illustrated. In both these figures the stay, A, and the very substantial steering-head brackets, A', are prominent. They render the tubular axle extremely strong to resist road-shocks, which is a very important consideration on any car—particularly when it is necessary (for other reasons) to employ a curved axle. It may also be pointed out, incidentally, that the stayed axle adds

Fig. 3.—Front view of an Argyll Car, showing the distinctive appearance that is characteristic of all Argyll vehicles. The tie-rod that stiffens the tubular axle, the substantial steering heads, and the large honeycomb radiator—behind which is fitted a belt-driven fan—stand out prominently in this illustration.

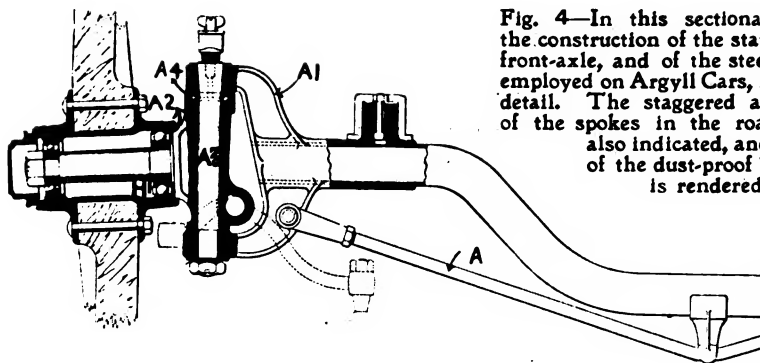


Fig. 4—In this sectional drawing, the construction of the stayed, tubular front-axle, and of the steering-heads, employed on Argyll Cars, is shown in detail. The staggered arrangement of the spokes in the road-wheel is also indicated, and the design of the dust-proof ball-bearing is rendered clear.

to the distinctive appearance of the Argyll car, when seen from the front as in Fig. 3.

In Fig. 4, the steering-head and the stub-axle, carrying the road-wheel, are shown in section, and an opportunity is thus afforded for appreciating other good "Argyll" features. The wheel itself revolves on ball-bearings of the D.W.M. type (with separating springs between the balls), which are made with ample space around the shaft for grease, and with an anti-friction thrust collar, A², that also excludes dust. Absence of undue wear in the steering-heads is ensured by providing them with ample bearing surfaces of very hard material, and by an effective system of lubrication. The fixed steel pin, A³, is rigidly secured to the bracket, A¹, by a locked nut beneath, this nut tightening up the conical faces at the upper end of the pin, A³, at the same time that it forces the split conical sleeve in around the lower end of the pin. The pin itself has a grease-cup above, and is drilled out with oil-ways that lead to the ball thrust-bearing, A⁴, and to the hardened steel

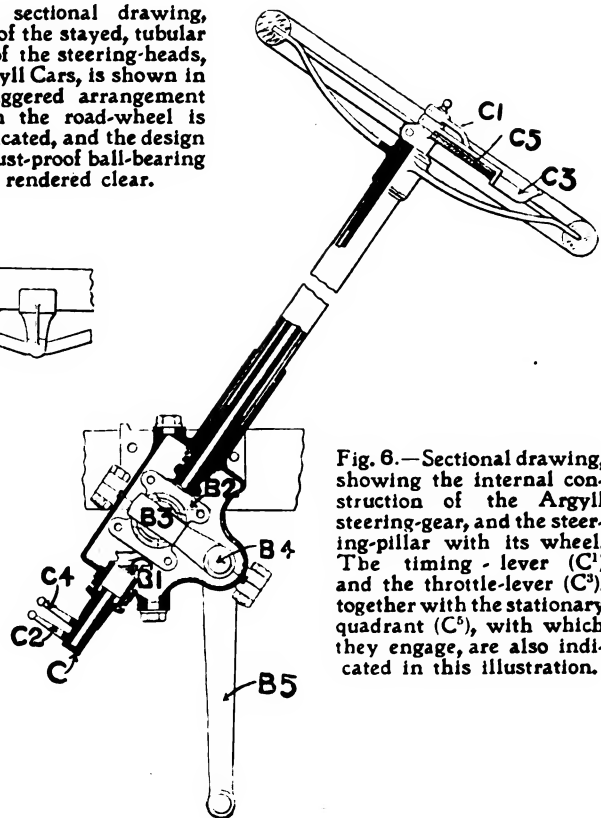


Fig. 6.—Sectional drawing, showing the internal construction of the Argyll steering-gear, and the steering-pillar with its wheel. The timing-lever (C¹) and the throttle-lever (C²), together with the stationary quadrant (C³), with which they engage, are also indicated in this illustration.

bushes that constitute the plain bearings for the swivel, lower down. The ball bearing, which takes the weight of the car, has a dust-collar encircling it.

The Steering-Gear.

Strong, simple, and adjustable for taking up any wear, the steering-gear is of that type in which a coarse-pitch

Fig. 5.—Two views of the Argyll steering-gear. On the left it is shown intact, with the lever-arm (B¹) that is connected to the steering-heads in place. On the right, the oil-tight casing that contains the gear mechanism is taken apart, and the triple-threaded worm (B¹) with its nut (B²) are exposed to view.

Fig. 7.—View from above of the Argyll steering-wheel, fitted with the timing (C¹) and throttle (C²) levers, by which the driver is enabled to control the power and speed of the engine. These conveniently placed hand-levers automatically lock themselves to the toothed quadrant (C³), whatever position they may be made to assume.

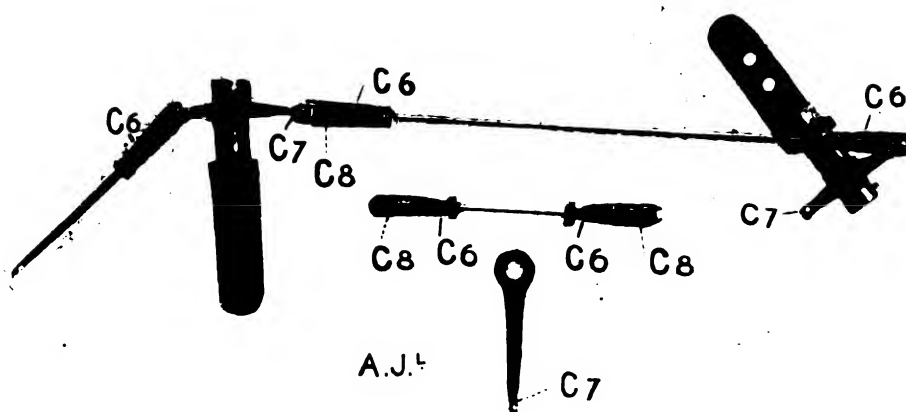


Fig. 8.—This illustration shows some of the extremely neat and convenient little ball-and-socket joints that are employed by the Argyll Company for connecting the control-levers with the timing-gear and with the throttle-valve.

screw and a nut are employed instead of a worm-wheel and a toothed segment. It is shown, both complete and in parts—by photographs—in Fig. 5, while Fig. 6 is a sectional drawing that renders clear the entire construction.

The central shaft, B—to which the steering-wheel is rigidly fixed—has the triple-threaded screw, B¹, formed near its lower end, and around this screw rides the travelling nut, B². The “nut” is made in two parts to allow any back-lash that may develop to be taken up at any time, and it is made to engage with the forked lever-arm, B³, as seen in our illustrations. The forked arm, B³, is solid with the fulcrum-pin, B⁴, and it is to the projecting end of the fulcrum-pin, B⁴, that the lever, B⁵, is secured.

Grease is retained in the casing enclosing the entire mechanism, and there are screw-plugs top and bottom of this casing for putting it in, and draining it out. The two halves of the casing are divided in such a way that the bearings for the fulcrum-pin, B⁴, are formed between them.

The base of the main shaft, B¹—which is hollow, and contains three concentric sleeves—is carried by an adjustable thrust-collar, that enables all end play to be taken up, and the necessary lock-nuts are provided for

holding it in place. Inside the shaft, B¹, the innermost sleeve, C, connects the “timing” lever, C¹, (above the wheel) with the lever-arm, C² (beneath the steering-gear casing), and similarly the sleeve immediately surrounding the sleeve, C, connects the throttle lever, C³, with the lever-arm, C⁴. The third sleeve (inside the shaft, B¹) carries the toothed quadrant, C⁵, for the levers, C¹ and C³, and thus holds the quadrant stationary even when the steering-wheel is being operated. At the top of the innermost sleeve, C, is an oil plug, through which all three sleeves can be lubricated.

The “Timing” and “Throttle” Levers.

Fig. 7 demonstrates the particularly neat and effective manner in which the small hand-levers, C¹ and C³, are arranged above the steering-wheel. They are normally locked in whatever position they may have been placed, for they have spring catches that engage with the teeth of the quadrant, C⁵. To disengage them, it is only necessary to pull the small handle outwardly, and they can then be moved over the quadrant freely.

One of the neatest features of these Argyll cars is that small ball and socket joints are used on the rods that constitute the control mechanism for the engine. The joints themselves are quite simple, and are remarkably effective, for they give the same facility of getting round awkward corners that do “Bowden” wires, and yet they have no corresponding drawbacks. Some of the joints, with their rods, are shown in Fig. 8, in which two ball-ended bell crank-levers, placed at a sharp angle, are seen connected together by a straight rod; in the same illustration is a sample rod with socket joints at each end, and a sample ball-ended lever-arm. The sockets, C⁶, which are adapted to be screwed over the ends of the rods, are split to enable them to spring into place, over the ball, C⁷, and they are provided with a locking screw, C⁸, that

Figs. 9 and 10.—The rear portion of an Argyll Chassis, with road-wheel removed, showing the live axle and the manner in which it is connected with the frame. In both illustrations, the internal expanding member of the hub-brake is exposed to view, but in Fig. 9 the toggle-mechanism is in its “on” position, and the detachable dust-cover (G¹) is in place, whereas in Fig. 10, the toggle-mechanism is in its “off” position, and the dust-cover has been removed. The dust-cover (G²), which is made in two parts for the purpose, enables the brake-mechanism to be adjusted without taking off the road-wheel.

The "Live" Rear Axle.

This extremely important part of any "chainless" car is well shown in Figs. 9, 10, and 12, and is also clearly visible, from another point of view, in Fig. 1. In Fig. 12 are seen all the various parts dismantled. The stationary portion, which is rendered free from "spring" by stay-rods, D^3 , fitted above and beneath, consists of a strong casing, D , containing the differential gear, E , of steel tubes, D^1 , enclosing the two halves of the revolving shaft, E^1 , and of the brackets, D^2 , that carry the brake mechanism as well as the springs. The casing, D , is made in two parts, and is fixed to the steel tubes, D^1 , in such a way that the upper part can at any time be taken off for examining the gearing without having to remove the entire axle from place. Complete examination is thus rendered quite easy. The upper half of the casing also has an inspection cover that gives sufficient access for filling up with lubricant, and for making any ordinary cursory examinations.

The axle shafts, E^1 , which are made of nickel steel, and carry the road-wheel hubs, E^3 , on their projecting ends, are mounted on four roller bearings, E^4 , and are driven by the bevel-wheel, E^2 , through the differential-gear, E . On each side of the differential, ball-bearings, E^5 , are fitted, in order to take the end thrust of the bevel-wheel; these are arranged in Fig. 12—as are the sleeves for the roller-bearings—near the positions which they occupy when in place. The roller-bearings, which are made in the Argyll factory, are of that type in which a cage is used to keep the rollers in position.

An important feature of the bevel gearing is that the bevel-pinion, F —which meshes with the bevel-wheel, E^2 ,—is supported by hardened steel bushes on both sides,

Fig. 11.—View of an Argyll road-wheel, showing the staggered arrangement of the spokes which adds considerably to its lateral strength. The spokes are also so shaped inside the hub, that the entire wheel can readily be tightened up, should the wood shrink after construction.

prevents them from slipping off again. The many advantages of this device cannot fail to appeal to all motorists.

Fig. 12.—The Argyll live-rear-axle, dismantled to show its internal construction. The detachable casting that enables the bevel-wheels (F and E^2) and the differential (E) to be examined readily at any time, and the differential planet-wheels with the driven bevel-wheel (E^2) are seen above the main portion of the stationary casing; the hubs of the road-wheels, with their brake-drums lie at each end of the main casing; and, beneath these parts, are placed the axle-shafts (E^1), with their roller-bearings and ball-thrusts.

instead of being allowed to overhang inside the casing, D. It has, moreover, a ball-thrust-bearing behind it. The shaft, F¹, to which it is fixed, is given a square cross-section outside the casing, where the propeller-shaft is coupled up to the usual universal-joint, as seen in Figs. 9 and 10.

Turning to Figs. 9 and 10, the flat radius-rods, D⁴, will be noticed; they pass from the spring-brackets, D³, on the axle to those carrying the front shackles for the springs.

The Hub Brakes.

Also clearly visible in Figs. 9 and 10, are the internal, expanding brakes that act direct on the hubs of the driving wheels. The mechanism by which they are operated, and are compensated to ensure an equal pull on both brakes, is shown in Fig. 1. The hand lever, G, at the side of the car is fixed to the transverse rock-shaft, G¹, and this shaft carries fulcrum-pins for the two bell-crank-levers, G². It is to the bell-crank-levers, G², that the brake rods, G⁴, are attached, and since the two bell-crank-levers are connected together by the rod, G³, it follows that the tension on the rods, G⁴, must equalise itself immediately the shaft, G¹, is rocked about its axis to apply the brakes.

In Fig. 9, the road-wheel and its brake-drum have been removed to expose the expanding brake-member to view, and in this illustration the toggle-mechanism, G⁵, is in its "on" position. In Fig. 10, however, two points of difference will be noticed, for, on the one hand, the toggle-mechanism, G⁵, is in its "off" position, and, on the other hand, the dust-proof cover, G⁶, has been removed. By comparing the two views, the action of the brake-mechanism will therefore be readily understood; the lever-arm, which is controlled by the rod, G⁴ (Fig. 1), is fixed to the pin, G⁷; this, in turn, is connected with the toggle-mechanism, G⁵; and the toggles tend to force asunder the two brake-shoes, G⁸, both of which are pivoted at G⁹.

An extremely useful point about these hub-brakes is that they can easily be inspected or adjusted, and that it is not necessary even to remove the road-wheel—or to

"jack up" the car—in order to do so. The cover, G⁶, renders this possible, for it is made in two parts and can, therefore, be taken off without difficulty. Every necessary provision is made for keeping the brakes properly adjusted at all times, and it is only at very infrequent intervals of time that the adjustment in the toggle-mechanism itself need be altered. The shoes are made of phosphor-bronze, and their effect on the brake-drum is equally powerful whether the car is moving forwards or backwards.

The Road Wheels.

Two advantages are obtained by the construction adopted in the Argyll road-wheels, for the spokes are not only staggered—that is to say, alternate spokes slope inwardly and outwardly from the felloe to the hub—but they are mitred in opposite directions where they fit up against one another to form the hub. The staggered arrangement, which is visible in Fig. 11, renders the wheel very strong laterally, thus reducing any chances of its collapsing when a car is travelling at a high speed round a corner, or has skidded up against the kerb. The two devices together enable the spokes to be tightened up, should they get slack owing to a shrinkage of the wood, for it is only necessary to reduce the thickness of fibre packing-pieces which are introduced between the wedge faces of each spoke and the hub-flanges, and the two flanges can be drawn together by the bolts. By this operation, the inner ends of the spokes are forced up closer to one another, thus rendering the hub more solid, and, simultaneously, all the spokes are pushed outwards so that they are tightened up into the felloe. This construction is more especially important for hot climates than for this country, good as it is in any case.

The wheels employed on the standard Argyll cars vary in size from 36 ins. to 32 ins., there being intermediate 34½ in. and 34 in. patterns for the 24-h.p. and 16-20-h.p. models. Similarly, the tyres with which they are shod are either 920 by 120 mm. (26-30-h.p.), 880 by 120 mm. (24-h.p.), 875 by 105 mm. (16-20-h.p.), or 810 by 90 mm. (10-12-h.p. and 12-14-h.p.).

(To be continued.)

Royal Commission on the Motor Car Acts—The Commission sat for the first time on Monday last, when the proceedings were, on the whole, of a purely formal nature. The Commission, however, decided that the Press would not be admitted to the sittings. At the second sitting on Tuesday the taking of evidence was commenced, when the witnesses examined were Mr. G. E. Wainwright, principal clerk at the Local Government Board and chief of the department administering the Motor Car Acts; the Hon. Arthur Stanley, M.P., Chairman of the Automobile Club and of the Motor Union of Great Britain and Ireland, and Mr. Rees Jeffreys, Secretary of the Motor Union and head of the Legal Department of the Automobile Club, whose examination was continued on Wednesday.

New Heavy Vehicle Regulations.—Mr. W. Worby Beaumont has written to the Automobile Club, suggesting that the Local Government Board should be asked to make an addendum to the present regulations affecting heavy vehicles, containing a clause specially referring to the steering-wheels of motor wagons. No specific reference being contained in the existing regulations, the L.C.C. officers are construing them to mean that the

minimum width of 5 in., which applies to the driving-wheels, must also be enforced for the steering-wheels, although the steering-wheels may actually be carrying less weight than is carried by a trailer, the minimum width of tyres for which is specified as 3 in.

PUBLICATIONS RECEIVED.

The Correspondence School of Automobile Engineering. Announcement of Correspondence Courses. Union and Perkins Streets, Akron, Ohio.

The Correspondence School of Automobile Engineering. Lesson Paper with Recitation Questions.

My Motor Log Book. A Handy Record. London: T. Werner Laurie, Clifford's Inn. Price 2s. 6d. net, cloth; 4s. 6d. net, leather.

The Advertisers' Year Book. London: H. Dawson and Co., 42, Norfolk Street, W.C. Price 2s. 6d.

Catalogues.

The Brooke Motors. Motor Boat Catalogue. Messrs. J. W. Brooke and Co. (Limited), Lowestoft.

Friswell (Limited). Hire Department. Friswell (Limited), 1, Albany Street, N.W.

Marine Motor List, 1905-6. The Parsons Motor Co. (Limited), Town Quay, Southampton.

A Few Opinions of the Six-Cylinder Napier. S. F. Edge (Limited), 14, New Burlington Street, W.

THE EMPIRE SPRING WHEEL.

(Concluded from page 1264.)

THE tyre, G, is mounted on a rim, G', in the usual way, and the connection between this outer member of the wheel and the inner member already described is in the first place effected by a set of trolleys, D, and driving-plates, C, and in the second place—for the sole purpose of aligning the two members, B² and G', and taking all side thrust—by guide-plate, H.

The trolleys, D, which are fitted with two rollers, D¹, are pivoted at C², to triangular plates, C, and these plates are themselves pivoted at C¹ to the star casting, B², and the anchor bolts, E³, respectively. The pins, C¹,

which secure the plates, C, to the casting, B², pass through the bosses, B⁴, situated only a little below the bosses, B³, carrying the rockers, F; and it will be noticed that these rockers are specially slotted in order to allow the pins, C¹, to pass through them without limiting their freedom of motion. The other pins, C³, which secure the plates, C, to the springs, E, are the same that form the hinged joint between the clamp, E¹, and the anchor bolt, E⁴. In Fig. 3, which is a photograph of an earlier type of wheel, the trolley will be noticed as being situated immediately over the centre of the springs, E, whereas in Fig. 4, they are shown in a different relative position, the result being that in this latest type the springs, now having a leverage over the trolleys, can be made somewhat lighter in consequence, and the points, C¹ and C³, are equally balanced on the trolley-pivot, C².

Owing to the normal eccentricity between the hub and the rim—which is due to the dead load of the car giving the

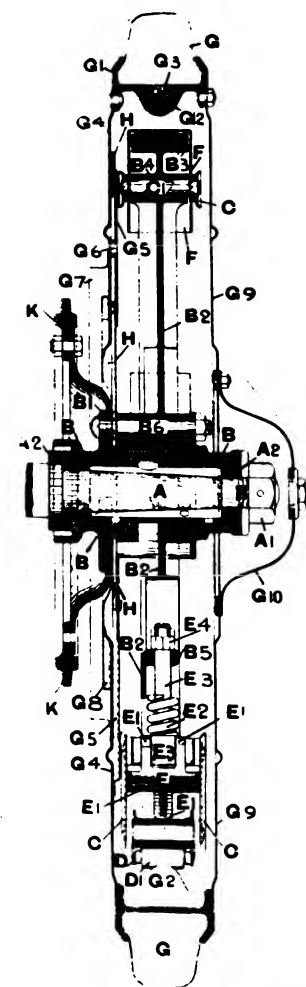


Fig. 5.—The "Empire" Wheel. Transverse Section.

springs a certain amount of initial deflection—only those trolleys which happen to be at any instant below the axle are actually in contact with the rim of the wheel. The others above the axle are prevented from touching the rim by the nuts, E⁴, coming up against the bosses, B³, on the central casting, B². The anchor bolt nuts, E⁴, for the lower springs, however, are, on the other hand, clear of their respective bosses, and any sudden shock which deflects the springs increases this clearance, and at the same time puts an additional stress upon the other anchor bolts which are holding down the upper springs.

If one of these upper bolts were to break, the effect would be equivalent to the puncture of a pneumatic tyre, for the whole system would collapse; in practice this would

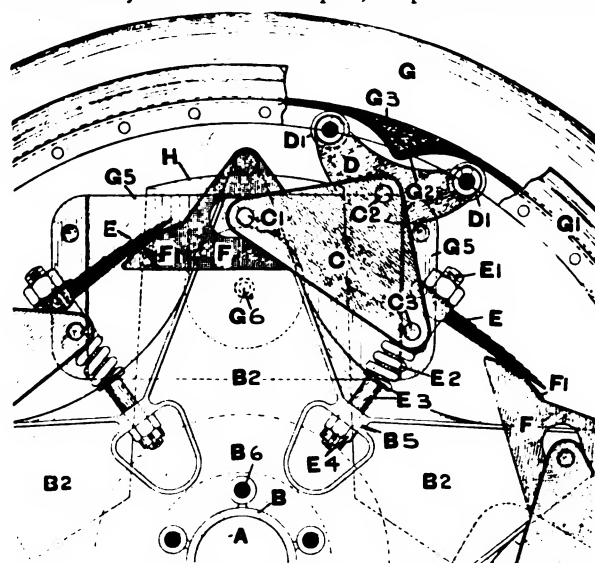


Fig. 6.—The "Empire" Wheel. Detailed drawing showing a portion of the wheel on a large scale, in order to illustrate the method of supporting the springs, and the shape of the inclined track for the trolleys which introduces the spring drive element.

not entirely disable the wheel, however, because the presence of the reserve springs, E², would enable the wheel to continue running, and would even supply an element of resiliency.

The Spring Drive.

Almost as important as the resiliency of the wheel itself is the resiliency of the transmission from the

Fig. 7.—The "Empire" Wheel. View of the interior, after removing the central member, showing the guide plate, H, which takes all side shocks.

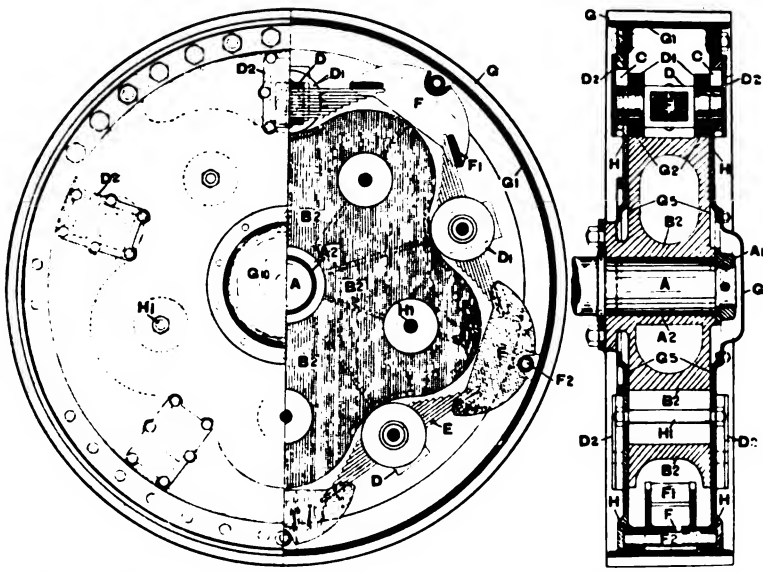


Fig. 8.—The "Empire" Wheel. Elevation (part sectional), and cross-section of the model specially designed for heavy vehicles.

engine. The heavier the vehicle the more important is it to damp out any fierceness in the clutch and, by preventing inequalities in the road from having an undue effect, to maintain the load on the engine as even as possible. In the "Empire" wheel a spring-drive has been introduced in a very simple and ingenious manner, without either employing additional springs or stressing those which are already in use in an unsuitable manner. To effect this the inner face of the rim of the wheel is cast with projections, G^2 , and, when the inner member of the wheel is put in place, the trolleys are so arranged that they straddle these projections which then form inclined tracks for the trolley wheels which lie on either side of them. The

result is that no sooner does the engine begin to drive the inner member than this member rocks round until the trolleys have mounted a certain distance up the incline, G^2 ; in doing this they have, of course, been compressing the springs, E, and before they have gone very far the resistance of the springs stops their further motion, and the wheel begins to rotate *en masse* in the usual way. The actual relative rotary motion between the two members of the wheel is, of course, very small, but the value of the spring-drive is none the less considerable, because the gear ratio between engine and road-wheels very greatly magnifies its effect.

Mention has already been made of the guide-plate, H, which takes all the lateral strain. This plate is cut from a sheet of steel about an eighth of an inch thick, and is star-shaped, as shown in Fig. 7. At its centre it is bolted to the hub member, B, and its three arms are held in guides, G^3 , which are rivetted to the back cover, G^4 , of the wheel. The back cover,

Fig. 9.—The "Empire" Wheel. Detailed drawing showing the arrangement of the reserve springs on the "heavy type" of wheel.

Fig. 10.—The Empire Wheel. Two views of the "heavy-type" wheel which has been specially designed for commercial vehicles. The view on the left shows the wheel complete, but three of the little cover plates, D^2 , have been removed to show the guides for the trolleys, D. On the right, the wheel is shown with the cover removed so as to expose the interior. Although of the heavy vehicle type, the wheel from which these photographs were taken has been constructed for use on a Cadillac touring car.

Fig. 11.—The "Empire" Wheel. Modified form of the "heavy type" wheel, in which the track for the rollers is on the inside of the rim.

G⁴, is itself securely riveted to the rim so that, with the guide-plate in place, the wheel as a whole is strong enough to withstand any side shocks to which it is likely to be subjected. In order not to impede the relative motion of the inner and outer members of the wheel it has been necessary to enable the guide-plate to move also, and this, it will be noticed from the illustration, has been provided for by the ample clearance between the edges of the plate and the ends of the guides. On the front of the wheel is another cover-plate, G³, fitted with a hub cap, G¹⁰, and when these are in place a third of the interior of the wheel is filled with oil. A pad-ring, G⁸, is fitted to make the wheel quite oil-tight and a mud-guard, G⁷, is also provided to prevent dirt from splashing on to the rubbing surface of the pad.

Wheels for Heavy Vehicles.

The type of wheel which Mr. Robinson has designed for heavy vehicles is shown in Fig. 8, in principle it is identical with that already described, although its component parts are somewhat differently arranged. It might almost be said that the touring wheel already described has been turned inside out in order to produce this heavy type of wheel, for it will be noticed that instead of the trolley wheels, D¹, running on the rim they now run on the central casting, and while the rockers, F, were previously pivoted on the central member they are now pivoted on the rim. The central casting, B², which is naturally made as light as possible, is mounted directly on the axle, the flanged housing, B, being dispensed with, although the sleeve, A², is retained. The central casting, B², has no longer the same pronounced

star-shaped appearance that it had in the other model, its contour being now of a more sinuous character, in order to make a suitable inclined track for the trolley wheels, D¹. The springs, E, are, in this type of wheel, carried directly by the trolleys, D, while the rockers, F, are pivoted on pins, F², which pass through lugs on the steel rim.

As the trolleys have to transmit the drive to the outer member, their trunnion-ends, fitted with square blocks, are mounted in guides, C, cut in the sides of the wheel, small covers, D², being provided to enable the blocks to be passed into place and retained there. Side shocks are taken in this wheel by making the side plates, H, overlap the central member on either side, distance bolts, H¹, being provided at intervals to stiffen the sides and guard against possible distortion through shock. No reserve springs are fitted to the wheel illustrated in Fig. 8, but the manner in which they would be introduced when necessary is shown in Fig. 9, which represents a small portion of another wheel of the same type.

It only needs a glance at the illustrations to show that such a wheel as we have described must have needed very careful thought and design. It is essentially an "engineer's job" from beginning to end, and although somewhat complicated in appearance, perhaps, it is in reality very simple, and many of the early difficulties of construction have been overcome by the use of castings instead of sheet steel. Of the two types, that specially designed for heavy vehicles has the more simple appearance and the fewer parts—which is, perhaps, an advantage, for it is, we are of the opinion, in connection with commercial work that spring wheels will find their greatest scope for useful employment.

Table of Reference Letters for the Empire Spring Wheel.

A	Axle.	F	Compensating rockers.
A ¹	Nut securing wheel to A.	F ¹	Curved saddles on F.
A ²	Perforated liner.	F ²	Pivot for F (Fig. 8).
B	Hub housing.	G	Tyre.
B ¹	Flange on B.	G ¹	Rim.
B ²	Central member.	G ²	Track for rollers.
B ³	Bosses on B ² .	G ³	Wood filling.
B ⁴	Bolts securing B ² to B ¹ .	G ⁴	Rear cover plate.
C	Driving plate.	G ⁵	Guide for H.
C ¹	Pivots for C.	G ⁶	Distance piece.
D	Trolley.	G ⁷	Mud guard.
D ¹	Trolley wheels.	G ⁸	Pad plate.
D ²	Cover plate for D (Fig. 8).	G ⁹	Front cover.
E	Main springs.	G ¹⁰	Hub cap.
E ¹	Clamp for E.	H	Guide plate.
E ²	Reserve springs.	H ¹	Distance piece.
F	Anchor bolts.	K	Chain wheel.
F ¹	Nut for E ¹ .		

THE notorious Knaresborough Bench, which is now running Andover very close in regard to the "justice" of its proceedings, was the scene of a rather amusing motor car case at the last session day, in which Lieut. Christopher Leather, of The Friary, near Sheffield, was summoned for exceeding the speed limit. Lieut. Leather's solicitor made a gallant fight for him, and he even tried to get on the fair side of the Bench by saying that they were all what they called sportsmen, and he believed from the appearance of the Bench that they were also. Needless to say, this observation was hailed with laughter in court. And though the police evidence was of the usual kind, the Bench fined the defendant £7 and costs. Mr. Wilson, the solicitor for Lieut. Leather, gave notice of appeal. Solicitors practising before this Bench in future will probably avoid the mistake of suggesting either that its members are sportsmen or even look so.

WE referred last week editorially to the proposal to build roads exclusively for motor traffic, to the impolitic character of the scheme, and to the conclusions which we knew would be drawn from it, and even last week we were able to bring forward at least one instance of how the effect on the anti-automobile Press was beginning to become apparent. Now we have the egregious Highways Protection League, which might be better termed a league for monopolising the roads for the horse, straying cattle, and irresponsible pedestrians, putting forward their opinion that—

"The real solution of the traffic problem, in the opinion of the League, lies in those who wish to travel at high speed doing so on roads set apart for the purpose. Perhaps it may be found practicable also to add a smaller way on each side of these roads reserved for bicycles."

and then no doubt the League would argue that automobiles should be kept off ordinary roads altogether!

THE MORSE CHAIN.

THERE is very little in the mere appearance of the Morse chain which would strike the casual observer as peculiar, more especially as the "silent" chains manufactured by Messrs. Renold have now become so familiar. In detail, however, it is entirely different to its prototype, and its construction is also extremely interesting.

The Morse chain—of which we give two illustrations—originates from America, but the Westinghouse Brake Company hold the exclusive rights of British manufac-

pin, B', is "set" in such a way that when the chain is nearly straight the pins have two flat faces in contact instead of only a "knife edge" and a flat face as is the case when the chain is bent.

In this way, the pins in the portion of the chain between the wheels are afforded a very considerable bearing surface at the time when they are doing most work. A consequence of this is that the chain has a very limited flexibility in one direction, because the pins form a stop, which prevents anything but a very slight inward "sag" to occur on the top side of the chain.

Owing to the elimination of rubbing friction, lubrication is considered by the manufacturers to be superfluous. Dirt is, of course, liable to find its way into the joints, and the lower edge of the pin, B', has been chamfered off in order to allow the dirt to accumulate in a position where it will not interfere with the working surfaces, or to eject it.

The normal drive is always transmitted from the wheel on to the face, C, of each link, whence it is taken through the two pins on to the link behind it. At first sight it appears as if the links were being *pushed*, but this is due to the curious construction which causes each link to receive the load from the tooth of the link in front of it instead of directly through its own tooth. It will be noticed, too, that the plates forming the links are only provided with proper "teeth" on one end, and as there is, therefore, only one driving face, C, on each link, the chain is normally what might be called "single acting." This does not prevent the chain from being used for temporary reversing purposes, but when it is required for transmitting power equally in either direction a slight modification is made in the standard design in order to provide the necessary driving face on both ends of each link. Even then, however, the

link is not formed with two complete teeth, but the small end is enlarged somewhat in order to give sufficient driving face to enable the pressure to be transmitted correctly through the pins. It is, it should be mentioned, due to

Fig. 1.—The Morse Chain.—View showing the chain fitted in place on a pair of wheels. It is retained in place by central plates in the chain which engage in a groove cut in each wheel.

ture. It is constructed on an entirely new principle, which eliminates the rubbing friction between the links and their pins, and a consequent efficiency is obtained which, we are informed, approximates to the exceptionally high figure of 99 per cent.

The principal peculiarity of its construction consists in the use of two specially shaped pins in each pin-hole. Each of these pins is fixed to its own composite link, so that the pins rock against one another instead of the links rocking about the pin, as is the case in an ordinary chain. The details of this arrangement are very clearly illustrated in Fig. 2, which shows a short length of the chain in which one of the riveted heads has been cut away to expose the pins. Each complete "link" of the chain is formed by a set of thin plates, the number of which is, of course, determined by the width of the chain. The ends of the plates of adjacent links interlace so that their pin-holes coincide, and when the two pins, A' and B' (Fig. 2), are driven into place, the pin, A', becomes rigid with the link, A, while the pin, B', is fixed to the link, B. The pin, A', has a semi-circular section, while the section of the pin, B', approximates to a sector. The flat face of the pin, A', thus forms a fulcrum for the pin, B', to rock upon. It will be noticed on close examination of Fig. 2, that the



Fig. 2.—The Morse Chain.—View showing the construction of the chain and the method of joining the links by means of two pins, A' and B', which rock about one another and so eliminate rubbing friction at the joints.

the links never being made with two full teeth that it is possible to use very small sprockets with these chains.

The chain is retained in place on the wheels by means of the plates, D, which are fitted down the centre of the chain. These plates are accommodated in a groove, which is cut in the wheels, and in this way the chain is prevented, by the teeth of the wheels, from sliding off sideways.

LONDON TRAFFIC PROBLEM. THE ENGINEERS' REPORT TO THE ROYAL COMMISSION.

IT was in July of this year that the first of the eight volumes of the Blue Book dealing with the report of the Royal Commission on London Traffic—which commenced its labours in February, 1903—was issued. The seventh volume has only just been published, and the eighth has yet to appear. These last two volumes are the bed-rock out of which the Commission's Report was hewn, for they contain the facts, figures, and suggestions of the engineers who formed their advisory board. As the eighth volume will only contain the plans and drawings illustrating certain of the more important proposals, it interferes but little with a full comprehension of the Report as regards details, and not at all with the understanding of the general lines on which the engineers proposed that the problem of London traffic should be solved.

There can be little question that this particular Blue Book forms the most valuable contribution to the subject of London traffic which has so far been compiled. The names of the three engineers concerned—Sir John Wolfe Barry, Sir Benjamin Baker, and Mr. W. Barclay Parsons, engineer to the New York Rapid Transit Railroad Commissioners—are an all-sufficient guarantee of ability, while the Report itself bears the hall-mark of thoroughness in every respect.

At the time when the first volume of the Blue Book—containing the Report of the Commission—was issued, we were constrained to draw attention to its somewhat scant acknowledgment of the progress of the motor 'bus, but we are particularly pleased to now see what prominence these vehicles have been given in the advisory report which was submitted to the board by the engineers. It is all the more gratifying, too, when the extremely embryonic state of motor 'buses at the time when the Commission came into existence is remembered. In the carefully compiled summary, both the subsection on tramways and the subsection on railways contain the following clause:—

"The careful consideration of the probable future of the motor omnibus and its bearing on railway and tramway policy."

There can be no doubt that the motor 'bus loomed large among the probabilities of the future, as they appeared to the minds of the engineers, and the reason they make no definite suggestions directly connected with their use is admirably summed up in the following paragraph which appears in the aforementioned summary:—

"The time has not arrived for a definite judgment to be formed as to the practical and financial prospects of the motor omnibus in London, and of its true position in a system of rapid transit relatively to the electric tramcar. Whatever may be the eventual result, however, of the rival systems, the recommendations which we have made as to routes and similar matters, including the widening of streets, will remain unaltered."

Considered merely as a straightforward statement, this sentence is, at least, an emphasis on the afore-mentioned recommendations of the engineers that the Commission should keep the possibilities of the motor 'bus prominently before them. We would suggest, however, that there is also a clue in it as to the engineers' real opinion on the subject, for unless they considered that the motor 'bus had some element of probability in its future chances, they would hardly have taken the trouble to guard against the contingency of the Commission voting solid for it, and taking advantage of

the exceptional mobility of these vehicles to cover a possible curtailing of their suggestions as to the urgent necessity for widening streets and constructing main avenues. More especially is this likely to be so, as the quotation in question is preceded by the following, which speaks for itself:—

"Many of the views expressed would have to be modified considerably if a comparison has to be made between electric tramcars and motor omnibuses, the future of which is at present uncertain. . . . The tentative working in London of motor omnibuses within the past twelve months distinctly indicates that a rate of speed can be practically maintained by them which compares not unfavourably with the speed of electric tramway cars in similar thoroughfares."

For those to whom the question of London traffic is a business matter, the engineers' report should be invaluable, but it is far too long and conscientious in detail, from the motorist's point of view, for us to give our readers the benefit of further extracts. There are, however, a few facts and figures contained in it which cannot fail to interest, because of the light which they throw on the enormous dimensions of the field open to the application of the commercial motor vehicle for public service work alone.

"Greater London"—which is the name given to the whole district included in the Commission's Report—extends for about 15 miles around Charing Cross, and has an area of 116 square miles. In this vast field there are some 3,000,000 working inhabitants, of whom about 400,000 have to make a daily journey in order to get to their places of business. In all, however, of the nearly 1,200,000 people who enter and leave the City daily, only about 272,000 are carried by railways. In the "central area," tube railways are used by about 380,000 people during the day, and some 520,000 make journeys wholly or partly by tram, while no less than 1,150,000 use omnibuses. In greater London 1,164,000,000 passenger journeys are made in a year, 301,000,000 by railways, 405,000,000 by tramways, and 458,000,000 by omnibuses.

The railway and tramway companies expend on an average about £5,000,000 per annum on the accommodation of London traffic, and there are now in Greater London 630 miles of railway and 203 miles of tramway in operation. In addition to this, however, there are 147 miles of tramway authorised but not yet built. About 110 miles of the existing tramway are working electrically. The following are the relative speeds officially given of the three systems of passenger traffic at present in use on our roads:—

	Crush Hours.	Slack Hours.	Speed in miles per hour.
Motor omnibus ...	6½—8½	8½—11½	
Horse omnibus ...	3½—6	5½—8	
Electric tramway ...	5½—7	8½—11½	

The new streets advised by the engineers range in width from 24 ft. to 94 ft. roadway, and they are divided into five classes, of which the widest is styled "Main Avenues."



WHEN Mr. G. W. Davey, of Lytton Court, near Hereford, was driving his motor car near that town recently, he stopped to allow some horses under the conduct of a certain William Powell, of Hereford, to pass by. This, however, did not satisfy the requirements of William Powell, who struck Mr. Davey over the face with a stick, inflicting a considerable wound upon him. For this he has very properly been sent by the Gloucester magistrates to prison for six months.

RACES, RECORDS, AND TRIALS.

VANDERBILT CUP RACE.—Hemery, who last Saturday, won the Vanderbilt Cup Race for France, on his Darracq Car.

Vanderbilt Cup Race.—After a keenly-fought battle on Saturday last, Hemery, the well-known driver for the Darracq firm, succeeded in securing this trophy in the race over the Long Island course in America. His time for the full distance of 283 miles was 4h. 36m. 8s. The cup is thus won by France, who, however, through the A.C. de France, had previously, as announced by us, decided not to compete in next year's race. The Cup will, therefore, remain in America, by this determination of France not to defend the trophy. The second in the race was also a representative of France, viz., Heath, driving a Panhard car, his time being 4h. 39m. 40s. America secured the third place, with Tracy, on the Locomobile petrol racer, in 4h. 58m. 26s., and Lancia, driving a Fiat car, owing to one of the American cars colliding with him, had to be content with fourth place in the time of 5h. 0m. 31s. These are the bare results of this struggle.

For days prior to the actual race, competitors practically monopolised the Long Island roads, creating thereby considerable ill-feeling amongst certain sections of the resident population, who retaliated by placing obstructions, in some cases of a serious nature, on the highway. Fortunately no accidents occurred in consequence of these ill-advised attempts to remonstrate with the racing men, who, after all, were only doing what appears to have been permitted by the authorities.

The race itself was successfully carried through without any serious mishap or loss of human life, although accidents to cars and competitors were very plentiful. Several of the European drivers during the preliminary trial runs over the course made some emphatic complaints, in one instance almost amounting to a stand-up fight, in regard to alleged "nursing" by some of the American competitors. Both before the race and during the race the dangerous corner at Albertson was respon-

sible for several severe accidents and many more hair-breadth escapes. The course was the same as for the American Eliminating Trials on Long Island, starting from New Hyde Park, the distance being 28½ miles per circuit. This was covered ten times, making a total of 283 miles. Jenatzy on R. Graves' Mercedes secured No. 1 position in the ballot, and was therefore the first to be sent off, punctually at six o'clock. At one minute intervals the rest of the nineteen starters were dispatched. With the exception of Christie all made good starts, some exceptionally good. Lancia on the Fiat made by far the best however, getting away with a splendid run. Christie was stuck at the starting point for over half an hour, and although at times during the race his car showed signs of running well, it was of such an intermittent character that he was hopelessly out of any chance from the very first, his total elimination being when he ran into Lancia's Fiat car in the 8th round, thereby taking what was practically a certain victory from Italy and giving it to France.

At the middle of the race (at the finish of the fifth circuit) the position and full times of the competitors for the 141½ miles were as follows:—

	H.	M.	S.			H.	M.	S.
1. Lancia	...	2	2	5	7. Warden	...	2	23 46
2. Heath	...	2	15	11	8. Tracy	...	2	25 18
3. Keene	...	2	20	33	9. Chevrolet	...	2	28 41
4. Sartori	...	2	21	6	10. Nazzaro	...	2	37 56
5. Sisiz	...	2	21	45	11. Lytle	...	3	43 53
6. Hemery	...	2	22	33				

Of the nineteen starters only four were officially timed for the full course, viz., Hemery, and the others whose times we have already given. The only other three that still remained in action after Lancia retired were Nazzaro, Sisiz, and Duray, they coming

VANDERBILT CUP RACE, 1905.—Table of Results.

Place.	Driver.	Car.	Country.	Official Number.	Weight, kilograms	Tyres.	Times per Lap (28.3 miles. 10 laps = 283 miles).										Average Speed.	Positions in Race at end of each Lap.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
							1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.		Total.	1st.	2nd.	3rd.	4th.	5th.	6th.	7th.	8th.	9th.	10th.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
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up to the finishing point in the order named subsequent to Lancia being timed, after which, the race was officially declared over, the public having already for some time "broken cover" throughout the course.

Hemery, the winner, made a poor run on the first round, being only thirteenth in respect to the best time, with 28m. 23s. Subsequently, however, he pulled up, making the fifth best time for the second and third rounds, dropping back, however, to ninth best in the fourth, but leading with 24m. 49s. in the fifth, from thence onward keeping steadily up towards the top, although in no individual circuit, except the fifth, did he make the best time.

Lancia, on the other hand, repeated the grand running on the Fiat which he made on the Auvergne Circuit. Had it not been for the collision, after the seventh round, due to Christie, there is little doubt that he would have simply "walked away" with the race. Commencing with a brilliant start, his times each circuit were never equalled, and moreover, not even approached. He led on the first round by over a minute, the second by nearly two minutes, and the third by three minutes, and at the end of the fourth had increased his advantage over all competitors to no less than 13m. 42s. At his fifth circuit he was 13m. 6s. ahead, on his sixth, 15m. 41s., and on his seventh, after which came his mishap, when restarting after setting right a tyre, he had no less than 20m. 57s. in hand in advance of the whole field. There can be hardly any question, therefore, that Christie's running into him from behind at the moment of his re-starting, cost him the race. Lancia's fastest circuit, and the fastest of the day, was the fourth, which he covered in 23m. 18s., the nearest approach of any other competitor to this time on any circuit being Sisz on his third of 24m. 21s. With the elimination of Lancia, Heath was left in the premier position, for the eighth circuit, but this he failed to maintain, Hemery running him very hard, and passing him in the next round, the latter ultimately winning, on his Darracq car, shod with Dunlop tyres, in the time already recorded, leaving Heath to take second place in the final. Tracy, the next in on the Locomobile petrol car, was the only American to finish, and Lancia, in spite of his accident, and the time necessarily wasted in putting his car right, still managed to get into fourth place within 24 minutes of the winner.

Some narrow escapes were reported, Foxhall Keene coming to grief at the S turn near Buli's Head by skidding on to the telegraph poles and smashing his wheel. In Christie's accident, both he and his mechanic were thrown out, sustaining fractures. Lytle, on the Pope-Toledo, also was the victim of a collision, his mechanic being ejected on to the road, and was unable to rejoin Lytle, who proceeded alone until he was able to secure another mechanic. Cedreno was another victim of skidding against a telegraph pole, Jenatzy smashed a wheel, Dingley suffered from cracked cylinder, Campbell broke his differential, Lytle ultimately was eliminated by a cracked cylinder, Duray being the one destined to find the usual dog on the course—in this case an animal considerably above the average size—with a resulting damage to his wheel.

The powerful and fast "White" racer altogether disappointed its supporters by never unfortunately getting into its paces, and finally retiring after the fourth round, the best time for a circuit being 42m. 31s. This racer sadly missed its "magician," Webb Jay, who knew so

intimately all its little points and foibles, and would undoubtedly have made it a serious element to reckon with for the rest of the competitors but for his unfortunate accident which recently placed him *hors de combat*. No doubt Walter White did his best to put her along, but perhaps under the circumstances it would have been the wisest course to have accepted the inevitable and to have stood aside from the race. In one or two quarters words of thankfulness were uttered that the master hand of Webb Jay was not at the wheel to guide the White car's destiny.

The organisation of the race was good, telephone communication being installed at distances of five miles, whilst a special "orator" was appointed to acquaint those at the Grand Stand with the progress of the race.

It is noteworthy that Hemery's car was the lightest vehicle in the race, viz., 859 kilogs., with the exception of the sister 80-h.p. Darracq driven by Wagner, which scaled 852 kilogs.

Misfortune, subsequently, on the Sunday, overtook Hemery's 80-h.p. Darracq car with which he won the race. When the vehicle was being prepared for shipment to France, a fire broke out and partly destroyed the car.

The case of disqualifying Hemery by the Italian A.C. in connection with the Florio Cup Race, was, when the Vanderbilt Race was run, still to come before the A.C. de France, who have since also disqualified Hemery from driving in France as long as the Italian penalty remains in force.

Although only one American car succeeded in getting through, W. K. Vanderbilt, jun., was so well pleased with the result of the race, as demonstrating the progress made by the American industry, that he announced his intention of creating for October next year, a new big International event, to be run in America.

Brighton to Edinburgh.—Mr. Cecil Edge last week successfully accomplished his task of driving a 6-cylinder Napier from Brighton to Edinburgh entirely on the top gear, and the time-table which we published in our last issue was adhered to throughout. Leaving Brighton at 6 a.m. Wednesday morning, Edinburgh was reached about half-past seven on Thursday evening, and during the whole of that run, which includes—as those who are familiar with the Great North Road well know—some very stiff hills, no other speed but the "top" was used, even for starting. Neither the machinery nor the Dunlop tyres were any the worse for this severe method of driving.

The car, with its passengers and luggage, weighed within a hundred-weight or so of two tons, and it was geared to 38.4 m.p.h. at the engine speed of 1,760 r.p.m. In these days of "Records" and Trials, it is difficult to devise a new test of any merit, especially for cars like the 6-cylinder Napier. Mr. Edge, how-

ever, in instituting this run—which was carried out under the observation of Mr. Straight, acting officially for the A.C.G.B.I.—happily hit upon a simple and effective scheme which should appeal to all motorists, especially those who are drivers of cars.

Impromptu Hill-Climb.—The Sheffield A.C. Handicap Hill-Climb for cars which took place on September 16th, has resulted as follows:—

		m.	s.
C. D. Leng	... 16-20-h.p. Fiat	7	4
J. H. Hall	... 12-h.p. Gladiator	8	29
J. T. Fryer	... 10-h.p. Hallamshire	8	50
Dr. H. Fletcher	... 6-h.p. Wolseley	11	25

Coupe de Compiègne.—The two days' tourist car trial recently held by the A.C. de l'Oise over a distance of 515 kiloms., starting from Compiègne, resulted in a win of the Cup by Baron Petiet, with a 30-h.p. Aries car. In Category 1, for cars under 2½ litre cylinder capacity, a 12-h.p. Gladiator obtained first prize, and was the only car classed. The weather was very bad, the roads worse, and the route selected was a severe one. A number of the competitors were disqualified, they having departed, by error, from the prescribed course. The majority of the rest were also not qualified for classification, as they did not maintain an average speed over the various sections of flat and uphill roads, as provided for by the rules, leaving only five cars and one motor bicycle in for classing. These were:—

CAT. 1 (under 2½ litres).—12-h.p. Gladiator, 1,108 points.

CAT. 2 (2½ to 3½ litres).—(1) 18-h.p. Herald, 836 points; (2) 12-h.p. Gladiator, 912 points; (3) 12-h.p. Bayard-Clement, 1,958 points.

CAT. 3 (3½ to 7½ litres).—30-h.p. Aries, 588 points (Coupe de Compiègne).

MOTOR BICYCLES.—Alcyon, ½-litre,

Gaillon Hill Climb.—For the seventh year in succession the contest on this hill, organised by *L'Auto*, was carried through on Sunday last. The distance of the test was over a flying kilometre, and 76 entries were received for this year's fixture—these including six

The six-cylinder Napier ready last week at the Automobile Club for its "top-speed" journey to Edinburgh, with Mr. Cecil Edge, who drove it, at the wheel, and Mr. Straight, the official observer on behalf of the Automobile Club, at his side.

tricar and seven heavy vehicles, both these being new classes created this year. No records were broken, the fastest time of the day being 31 seconds, made by Baron de Caters on a 120-h.p. Mercedes, and Cissac, on a Peugeot bicycle, weighing under 50 kilogs., a remarkable "dead-heat" between such a pigmy and such a giant. The unlowered record stands at 29 seconds. The best combined time, however, of 1m. 11secs. for the two hill climbs of Chateau Thierry and Gaillon, which *L'Auto* bracket together as allied events, still remains with Clifford Earp and the 6-cylinder Napier. Unfortunately Earp's car was not in its best stride on Sunday, and was 1½secs. behind De Caters' winning machine. Bablot, on his Berliet car, was at the head of the Tourists with 44½secs., and Rivierre, driving a Contal-tri, secured first place in his class with 1m. 22½secs. In the Heavy Vehicle Class, the "Automoto" light wagon proved the fleetest in 4m. 42½s.

The chief times were:—

Racers.

Heavy Cars (650 to 1,000 kilogs.).

1. De Caters (120-h.p. Mercedes), 31 secs.; 2. Villemain (120-h.p. Bayard-Clement), 32 secs.; 3. C. Earp (6-cyl. Napier), 32½s.; 4. Teste (120-h.p. Mercedes), 33½s.; 5. Stead (120-h.p. Mercedes), 38½s.; 6. Faure (60-h.p. Mercedes), 43½s.

Light Cars (400 to 650 kilogs.).

1. A. Clement (Bayard-Clement) and Hanriot (Darracq) dead heat, 32½s.

Voiturettes (under 400 kilogs.).

1. Barriaux (Vulpes), 45s.; 2. Touloubre (Darracq), 47½s.

Motor Bicycles (under 50 kilogs.).

1. Cissac (Peugeot), 31s.; 2. Guippone (Peugeot), 40½s.; 3. Anzani (Buehet), 50½s.

Tourist Cars.

- CAT. F.—18,001 to 25,000 francs.—1. Bablot (Berliet), 44½s. 2. Gaste (Radia), 1m. 7½s.

- CAT. E.—15,001 to 18,000 francs.—1. Langruber (Fiat), 1m. 9½s. 2. Marnier (Radia), 1m. 20½s.

- CAT. D.—12,001 to 15,000 francs.—1. Baras (—), 1m. 30s. 2. Aublanc (Darracq), 1m. 33½s.

- CAT. C.—8,001 to 12,000 francs.—1. Chanliaud (Gardner-Serpollet), 1m. 9½s. 2. Deguingand (Vinot), 1m. 12½s.

- CAT. B.—4,001 to 8,000 francs.—1. Thorel (Gardner-Serpollet), 1m. 15s. 2. Miormet (Gardner-Serpollet), 2m. 12½s. 3. Delaunay (Boyer), 2m. 17½s.

- CAT. A.—Under 4,000 francs.—1. Bailleau (Bailleau), 3m. 10½s. 2. Jousse (Fouillaron), 3m. 15s. 3. Folberth (Oldsmobile), 3m. 15½s.

*Motor Bicycles (½ litre).—*1. Anzani (Alcyon), 53½s. 2. Quentin (Contant), 59½s. 3. Guippone (Peugeot), 1m. 0½s.

*Tri-cars.—*1. Rivierre (Contal), 1m. 22½s. 2. Penel (Stimula), 1m. 41s.

*Heavy Vehicles.—*Automoto (light wagon), 4m. 42½s; Serpollet (30-seated omnibus), 6m. 4½s.; Brillie II. (5-ton wagon), 8m. 38½s.; Aries (3-ton wagon), 10m. 48½s.; Brillie I. (30-seated omnibus), 11m. 11½s.; Dufoure (5-ton wagon), 12m. 54½s.

Coming Events.—The Competitions Committee of the A.C. de France have decided that for 1906 the club will organise, under the title of "Circuit Européen," the already much-discussed extended tourist car trial, which will embrace Paris, Central France, Northern Italy, Lower Austria, Vienna, Prague, Berlin, Cologne, Brussels, and back to Paris. For the purpose of drawing up regulations, four sub-committees have been appointed to deal respectively with (1) classification, which will be based mainly on horse-power in relation to weight; (2) the route; (3) the fêtes and exhibitions *en route*, at the chief towns visited during each stage; (4) carriage body. In this it is suggested that a uniform type of body, varying only so far as weight is concerned, should

be made compulsory. The entire event may cover 25 days, and June or July will be the probable months selected.

UNDER the title of the "Targa Florio," a new trophy is to be offered by M. Vincenzo Florio for competition in Sicily next year. Entry is to be confined to tourist cars, of which the chassis cost is less than 20,000 francs. In the case of vehicles valued at less than 15,000 francs, the weight in complete running order must not be less than 1,000 kilogs. For cars costing 15,000 to 20,000 francs, the weight must be at least 1,300 kilogs. The route which will be selected will, it is stated, be very severe in character, and over which nothing but vehicles built in the very strongest manner could possibly hope to succeed. In order to ensure a good entry list, M. Florio announces that special arrangements will be made for conveying entered cars from France by boat at an inclusive charge of 25 per cent. of the usual freightage to Sicily.

A SIX-DAY economy test for automobiles is taking place in New York under the auspices of the New York Motor Club from October 23rd to 28th. The object is to demonstrate how economically persons may be transported between given points in motor vehicles. There are five classes, according to the selling prices of the contesting machines, ranging from cars costing 750 dollars to above 3,500 dollars. The daily runs will be from New York to Philadelphia (90 miles), back again (90 miles), to Albany (150 miles), back again (150 miles), to Southampton, L.I. (101 miles), back again (101 miles). Total distance, 682 miles. The charges to be made per person are based on the railroad fares. All fuel and lubricants are to be charged up at current rates, and repairs are to be allowed for at a specified rate per hour.



MOTOR CYCLING.

Quarterly Motor Cycle Trials.—Suggestions have been made to the Auto Cycle Club that they should hold 100 Miles Quarterly Trials for motor cycles, in similar manner to the A.C.G.B.I., for cars over the road from London to Oxford and back, taking Dashwood Hill and Aston Hill *en route*. It remains for those interested in the pastime to encourage the club to proceed further with this matter.

Sheffield A.C. Hill Climb.—The results under the Auto Cycle Club formula of the handicap hill climb for motor cycles, arranged by this club on Sept. 16th, is as follows:—

		Time.			
		m.	s.	marks.	
1.	G. D. Flather, 3½-h.p. White and Poppe ...	4	42	27	
2.	W. L. Gilder, 2½-h.p. De Dion Tricycle ...	8	27	30	
3.	F. Donovan, 3½-h.p. De Dion ...	7	11	35	
4.	J. Walker, 5-h.p. De Dion ...	4	36	47	

International Cup.—In regard to proposals of the Austrian Motor Cyclists Union for altering the regulations governing this Cup, for future years, so that the weight limit may be placed on the machine only, without tyres, or on the motor by itself, after full consideration, the Moto Cycle Club of France have come to the determination that they are not able to accept the modifications in view of the regulations as they stand in regard to the Cup. The British Auto Cycle Club, who have already submitted proposals to limit the race to makers of standard pattern machines, are willing to support the Austrian Club proposals or any others likely to eliminate the "freak" racing motor bicycle and improve the standard touring machine. It is to be hoped, therefore, that the French Moto Cycle Club will see their way to fall in with the very reasonable and, moreover, essentially sensible suggestions of the Austrian body.

THE TOURIST TROPHY RACE QUESTION.

(Concluded from page 1270.)

TABLE IV.—Relationship of Windage to Power, Speed, Road-Resistance, Gradient, and Fuel Consumption.—(Copyright.)

Gradient.	Tractive Pull Required to overcome:			The effect of "Windage."				Data, obtainable in practice with 12-b.h.p. available on the Road Wheels.							Equivalent data with 15-b.h.p. on Road Wheels.		Equivalent data with 9-b.h.p. on Road Wheels.		Gradient.
	Road-Resistance.	Gradient (i.e. gravity).	Road - Resistance plus Gradient.	Possible speed with 12-h.p. if no "Windage."	Actual Pull imposed by "Windage" at such speed.	Relative magnitude of such "Windage" to Road-Resistance plus gradient.	Power actually required to attain such "theoretical" speed.	Speed of Car.	Tractive Pull induced by "Windage" only.	Road-Resistance.	Gradient (gravity).	"Windage."	Relative Fuel Consumption (distance per unit quantity).	Speed of Car.	Relative Fuel Consumption (distance per unit quantity).	Speed of Car.	Relative Fuel Consumption (distance per unit quantity).		
Down.	lbs.	lbs.	lbs.	m.p.h.	lbs.	%	b.h.p.	m.p.h.	lbs.	b.h.p.	b.h.p.	b.h.p.	miles.	m.p.h.	miles.	m.p.h.	miles.	Down.	
1 in 3	60	-800	-740	—	—	—	—	113.8	780	18.0	-240.0	234.0	3.30	114.6	2.66	113.2	4.38	1 in 3	
4	60	-600	-540	—	—	—	—	98.75	585	16.0	-160.0	156.0	2.86	99.7	2.32	97.9	3.78	4	
5	60	-480	-420	—	—	—	—	88.6	471	14.0	-122.0	120.0	2.57	89.75	2.08	87.5	3.38	5	
6	60	-400	-340	—	—	—	—	81.25	395	13.0	-87.0	86.0	2.36	82.5	1.92	79.8	3.07	6	
8	60	-300	-240	—	—	—	—	71.0	303	11.5	-57.3	57.8	2.06	72.75	1.69	69.3	2.68	8	
10	60	-240	-180	—	—	—	—	64.5	250	10.3	-41.3	43.0	1.87	66.4	1.54	62.5	2.41	10	
12	60	-200	-140	—	—	—	—	59.9	215	9.5	-32.0	34.5	1.74	62.0	1.44	57.5	2.23	12	
16	60	-150	-90	—	—	—	—	53.8	173	8.7	-21.7	25.0	1.56	56.3	1.31	51.0	1.97	16	
20	60	-120	-60	—	—	—	—	50.0	150	8.0	-16.0	20.0	1.45	52.75	1.22	46.9	1.82	20	
25	60	-96	-36	—	—	—	—	46.9	132	7.5	-12.0	16.5	1.36	49.8	1.16	43.5	1.68	25	
30	60	-80	-20	—	—	—	—	44.8	120	7.2	-9.6	14.4	1.30	47.9	1.11	41.2	1.59	30	
40	60	-60	0	8	8	8	8	42.2	107	6.8	-6.8	12.0	1.22	45.6	1.06	38.25	1.48	40	
60	60	-40	+20	224.0	900.0	4,560	548.0	39.5	93	6.3	-4.3	10.0	1.14	43.0	1.00	35.5	1.37	60	
120	60	-20	+40	112.0	753.0	1,885	237.0	37.0	82	5.9	-1.9	8.0	1.07	40.6	.94	32.6	1.26	120	
240	60	-10	+50	90.0	476.0	950	126.0	35.6	76	5.8	-1.0	7.2	1.03	39.4	.92	31.1	1.20	240	
Level	60	0	+60	75.0	337.5	560	79.0	34.5	71.7	5.5	0	6.5	1.0	38.2	.89	29.8	1.15	Level.	
Up.	lbs.	lbs.	lbs.	m.p.h.	lbs.	%	b.h.p.	m.p.h.	lbs.	b.h.p.	b.h.p.	b.h.p.	miles.	m.p.h.	miles.	m.p.h.	miles.	Up.	
1 in 240	60	+10	+70	64.5	249.0	356.0	55.0	33.2	66.2	5.25	+0.9	5.85	.96	37.0	.86	28.5	1.10	1 in 240	
120	60	+20	+80	56.25	190.0	238.0	40.5	32.0	61.5	5.1	+1.7	5.2	.93	35.8	.83	27.1	1.04	120	
60	60	+40	+100	45.0	121.5	121.0	26.5	29.5	52.3	4.75	+3.15	4.1	.86	33.6	.78	24.7	.95	60	
40	60	+60	+120	37.5	84.5	70.0	20.5	27.2	44.7	4.4	+3.25	4.35	.79	31.5	.73	22.5	.87	40	
30	60	+80	+140	32.25	62.5	44.0	17.3	25.2	38.3	4.0	+5.32	2.68	.73	29.4	.68	20.4	.79	30	
25	60	+96	+156	28.85	50.0	32.0	15.8	23.7	33.8	3.8	+6.06	2.14	.69	27.8	.65	19.0	.73	25	
20	60	+120	+180	25.0	37.5	21.0	14.5	21.5	27.8	3.5	+7.0	1.5	.62	25.7	.60	17.1	.66	20	
16	60	+140	+210	21.4	27.5	13.0	13.5	19.3	22.4	3.1	+7.75	1.15	.56	23.2	.54	15.1	.58	16	
12	60	+200	+260	17.3	18.0	7.0	12.8	16.3	16.0	2.6	+8.7	.7	.47	19.75	.46	12.5	.48	12	
10	60	+240	+300	15.0	13.5	4.5	12.55	14.4	12.4	2.3	+9.23	.47	.42	17.6	.41	10.9	.42	10	
8	60	+300	+360	12.5	9.4	2.6	12.3	12.2	9.0	1.95	+9.76	.29	.35	15.1	.35	9.25	.36	8	
6	60	+400	+460	9.75	5.7	1.2	12.2	9.6	5.5	1.55	+10.31	.14	.28	12.0	.28	7.3	.28	6	
5	60	+480	+540	8.33	4.2	.77	15.1	8.25	4.1	1.32	+10.59	.09	.24	10.3	.23	6.2	.24	5	
4	60	+600	+660	6.8	2.8	.42	12.05	6.77	2.8	1.09	+10.86	.05	.20	8.5	.20	5.1	.20	4	
3	60	+800	+860	5.23	1.7	.20	12.03	5.22	1.7	.83	+11.15	.02	.15	6.5	.15	3.9	.15	3	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	

Tourist Trophy Car Data, assumed in Table IV.

Weight.—Chassis = 1,450 lbs, body and load = 950 lbs.
Total = 2,400 lbs.

Power. B.H.P. of engine = 18; transmission loss = 33½ per cent. B.H.P. on road-wheels = 12-h.p.

Gear.—Gradually variable change-speed mechanism, having full range.

Windage = .005V² (V = speed in m.p.h.) lbs. per sq. foot.
Cross-section of car = 12 sq. ft. ∴ Actual windage = .06V².

Road-resistance.—Draw-bar pull of 56 lbs. per ton = $\frac{1}{40} \times 2400$ lbs. = 60 lbs.

Engine-speed, Power, and Consumption.—25 per cent. more or less speed (above or below "normal") = 25 per cent. more or less b.h.p. (15-h.p. or 9-h.p. on road-wheels), and 25 per cent. more or less fuel per hour.

The above table will be found extremely valuable from three distinct points of view—all of which have an important bearing on the Tourist Trophy Race question. It not only shows (1) the speeds that a car weighing 2,400 lbs. can attain on roads having various gradients, when 12-b.h.p. is available on the road-wheels, but it also brings forward (2) the prominent part which "windage" plays in the absorption of power, and (3) the great effect which higher speeds have in increasing the fuel consumption *per mile*. The assumed data set out above—which has formed the basis of our calculations—renders our figures applicable as far as possible to the type of car for which the present Tourist Trophy rules are intended. It should be pointed out, however, that it has been necessary to work on the assumption that the change-speed-gear on the car is capable of giving *any* desired ratio in order to maintain a constant engine-speed at any car-speed, and that no allowance has been made, in the figures showing relative fuel consumption, for the reduced efficiency and for the lower proportionate h.p. which result in practice from running an engine above its normal speed—facts which were very forcibly demonstrated in connection with our recent experiments on this subject. Both these considerations tend to make our figures minimise the actual fuel-

consumption differences that there would be in practice, and the former renders those referring to speeds (in miles per hour) much more regular than they would be with existing vehicles.

In column 1, the various gradients are arranged in order of steepness, from a descent of 1 in 3 to an ascent of 1 in 3, and these are, for convenience of reference, repeated again in the last column.

In columns 2 and 3, the draw-bar pull resulting from road-resistance and from gravity (gradient), respectively, are set out in lbs., while in column 4, the combined effect of the two is given.

The 5th column indicates the speed which the car could attain, with 12-b.h.p. available on the road-wheels, if there were no such thing as "windage"—i.e., if the car were travelling in a vacuum. It will there be noticed that on a down grade of 1 in 40, the power required to overcome the road-resistance is balanced by the power derived from gravity, and that therefore the speed becomes infinite. In the next column (6), is given the actual resistance of the air, on a still day, (windage) at such "imaginary" speeds, these figures, therefore, representing the pull in lbs. that had been neglected in column 5. Its relationship to the pull required for overcoming road-resistance as well as gravity is given separately in the succeeding column (7). Finally, in this portion of the table, column 8 shows the b.h.p. that would have to be available on the road-wheels for the car to attain the speed given in column 5.

In column 9, the real speed that can be attained in practice is indicated, "windage" having been taken into account in these calculations and its value in lbs. set out separately in the following column (10). The enormous effect of the air, when travelling fast, is seen to be remarkable, for whereas in column 5 we find 224 m.p.h. for a down grade of 1 in 60, yet in column 9 the possible speed is only 113.8 m.p.h. down a hill of 1 in 3.

The next three columns (11, 12, and 13) are particularly interesting—corresponding as they do with columns 2, 3, and 10—for they show the manner in which the original 12-h.p. on the road-wheels is expended, and indicate precisely how much power is absorbed by road-resistance alone, by gradient alone, and by windage alone; the sum of the three figures in these three columns is, of course, invariably 12. On a down grade of 1 in 40, for instance—when (as already pointed out) the road-resistance is exactly counterbalanced by gravity—the whole of the 12-h.p. goes to overcome the windage, which (at 42.2 m.p.h.) requires a draw-bar-pull of 107 lbs. Then comes a column (14) in which the corresponding fuel-consumption is expressed in miles per unit of quantity, these figures being based on the assumption that the car can run one mile on one unit of fuel when it is travelling at 34.5 miles per hour and when the engine is developing 12-b.h.p. on the road-wheels—i.e., when the car is running at normal speed on the level and the engine is fully loaded (18-b.h.p.) at its normal speed. The figures are, of course, proportionate to the rate of travel, since the fuel consumption per hour would remain constant, and they simply show the effect of gradient (and windage) on the consumption per mile.

Columns 15 and 16 correspond with columns 9 and 14, except that they are based on an assumed power of 15-b.h.p. (instead of 12-b.h.p.) on the road-wheels. They not only show that a 25 per cent. increase of power makes very little difference in the speed attainable by the car when that speed is already high, but they also emphasise the fact that, such as it is, it is accompanied by a material increase of fuel-consumption per mile, excepting when the car is travelling quite slowly. In practice, if the engine were accelerated to 25 per cent. above its normal speed, the b.h.p. would not on most cars be increased by as much as 25 per cent. (18-h.p. to 22½-h.p.), and the fuel consumption per hour would undoubtedly be increased by more than 25 per cent., but we have assumed that both these performances are achieved, and, therefore, a comparison of column 16 with column 14 only shows the extent to which the mileage per unit of fuel is decreased by windage alone; the difference would, therefore, be very much greater in reality.

The converse case is dealt with by columns 17 and 18, column 17 corresponding with columns 9 and 15, and column 18 corresponding with columns 14 and 16. Here, the basis of power is taken as being 9-b.h.p. on the road-wheels—a decrease of 25 per cent. Again, it has been assumed that the fuel consumption per h.p. per hour is the same as before, and, in order to make the figures applicable to a car in which the engine speed has been reduced to 25 per cent. below the "normal," it must be further assumed that the b.h.p. is exactly proportionate to the speed, i.e., 13½-h.p. The gain shown in mileage per unit of fuel is therefore only that which results from "windage." The difference, however, is very marked, for whereas our unit of fuel is seen to take us a mile on the level at normal engine speed, it only takes us that distance on a down grade of 1 in 60 when the engine is accelerated, but, on the other hand, takes us the same distance on an up grade of about 1 in 100 if the engine speed is reduced by 25 per cent. For the extreme case of descending a hill of 1 in 3 the mileage figures are 3.3, 2.66, and 4.38 per unit of fuel respectively, for normal speed, for accelerated speed, and for reduced speed of engine.

The Application of Table IV. to the 1905 Tourist Trophy Race.

On the basis of Table IV., by applying it to the Tourist Trophy course in the Isle of Man, and taking the gradients as being those approximated in our Table III. (p. 1117, September 9th), we find that if our assumed car were to have 12-b.h.p. available on the road-wheels, then it could complete the whole course (208.5 miles) in 6h. 35m. 52s.—or 1h. 38m. 58s. per circuit—this representing an average speed of 31.7 miles per hour. If, however, the engine were accelerated by 25 per cent., and gave 15-b.h.p. on the road-wheels, the whole course would be covered in 5h. 52m. 48s. (a gain of 43 mins.) which is equal to 1h. 28m. 12s. per circuit—or a mean speed of 35.55 miles per hour. On the other hand, if the engine speed were reduced by 25 per cent., and gave 9-b.h.p. on the road-wheels, the car would take 7h. 39m. 48s. for the entire course (a loss of 1h. 14m.), which represents 1h. 57m. 27s. per circuit, or an average speed of 26.7 miles per hour. The further useful data, derivable in the same manner, is that if the fuel-consumption per hour were proportionate to the b.h.p. developed by the engine, the car would consume almost exactly one gallon more (10½ gals.) for the whole race under the accelerated conditions, and almost exactly one gallon less (8½ gals.) than normal if it ran with the engine speed reduced; these figures are founded on the supposition that the fuel-consumption would be 9½ gallons for the race if the engine ran at normal speed, i.e., giving 12-b.h.p. on the road-wheels all the time. A comparison of these theoretical results with the actual performances of the cars which took part in this year's race is very instructive, for they approximate very closely to one another.

OUR CORRESPONDENTS' LETTERS.

There is yet one matter, in connection with this important question of the Tourist Trophy type of contest, that should be dealt with before concluding the present series of articles, the appearance of which has been delayed somewhat owing to recent pressure upon our columns. We feel that some further remarks and explanations are required upon one or two of the points raised by our correspondents in their published letters, and that it would be useful, in view of future rules and regulations, to refer to a few of the considerations involved. It is unnecessary to give anything like a full summary of the various opinions expressed in those letters, because nothing could serve their purpose better than the letters themselves. It would indeed be almost impossible to do so, since our various correspondents fortunately looked at the question

from such very diverse points of view. But we would draw attention to the fact that on several of the points at issue, opinions differed enormously, and that evidently a considerable number of practical data was then needed before anything like unanimous accord could have been expected. Even now that the first Tourist Trophy Race has been run, and that its many lessons are therefore available, we think the following references to our original article, and to our correspondents' letters, will serve a useful purpose—even if that purpose should chiefly be a clearing of the ground in readiness for fresh considerations.

"Durability."

Referring to one of those matters on which it is evident, from the "views and opinions of our readers," that our original article was not sufficiently lucid, it should be pointed out that the "durability"

of a car is to a certain extent tested in the contest, even though the race extends over such a short period. In an ordinary race, the loss of power brought about by such additional friction as might lead to undue wear and tear of the mechanism would not necessarily have any serious effect on the result, since the speed capabilities of the car might well be maintained, in spite of it, by increasing the power of the engine. Such compensation would, however, increase the fuel consumption; therefore any such loss of power would, in the Tourist Trophy race, constitute a direct handicap.

"Consumption" or Cylinder Dimensions.

Another point upon which special emphasis may not be out of place concerns the relative merits of taking "fuel consumption," or "cylinder dimensions" as the basis for limiting the power of the engines. Quite subsidiary drawbacks to the latter method are those of having to check the maker's figures, and the premium that might be put on high-speed engines (*per se*), but the really serious objections, in our opinion, are that a direct incentive is given to the construction of uncommercial engines, and also that there would be a great inducement for the driver to make a practice of "racing" his engine as much as possible. It would, for instance, be quite possible to fit an auxiliary pump-mechanism to the engine for forcing larger charges into the cylinders. Even if such an obvious "freak" device were barred by the rules, it might still be found advantageous to employ an abnormally high compression, and merely prevent it from occasioning pre-ignition by skilful manipulation of the engine—by always keeping it at a high speed during the race.

Divided Bodies.

Concerning one of the suggestions made by us for modifying the rules in future years, the sole reason for proposing that the body should—for the purpose of the race *only*—be divided into four separate parts, was that it would prevent any evasion of the rules relating to the respective weights of the chassis and of the body. In the majority of cars now used, the body does not materially stiffen the frame, and consequently it might be well to prevent it from being made to do so on a "freak" car. It is quite conceivable that a strong metal body, securely fixed at numerous points to an otherwise flimsy chassis, might enable the car to withstand the strains imposed upon it during the race, but that with an ordinary body it would stand no chance of holding up in a severe trial of any kind. It might, moreover, be held that the short duration of the race renders it desirable that the ordeal should be made as searching as possible, and that, therefore, the removal of whatever stiffening an average body may afford, is desirable in the interests of competitors and public alike. It is not, however, a matter of much importance, and would cease to have any at all if the "maximum" weight limit of the chassis were to be abolished.

Gradually-Variable Gears.

The proposal to arbitrarily restrict the number of "speeds" has not only brought up the question of gradually-variable change speed

mechanisms, but is in itself one which demands the most careful consideration. Gradually-variable gearing being practically non-existent at the moment—at any rate, from a commercial standpoint—need not, we think, be taken into account in next year's rules too seriously. Apparently there is no reason why such mechanisms should be in any way excluded, but it will be quite time enough to frame any special rules that may be needed for them when they do arrive upon the scene and demand attention. Such "gears" are obviously highly desirable if they can be rendered thoroughly successful, and it is only right that their makers should benefit in the Tourist Trophy—as they unquestionably might do.

Gear-Box Restrictions.

What is of vastly more importance just now, however, is as to how many "speeds" should be allowed in the ordinary type of gear-box, and another burning question affects the relative ratios of the different "speeds." It is a well-known fact, which is amply borne out by our recent tests, that every additional intermediate "speed" in the gear-box would be equivalent to an additional allowance of petrol in the fuel-tank, on such a course as that selected for the Tourist Trophy Race in the Isle of Man. It would, in fact, enable the engine to be run for longer periods at the most efficient speed and load; and would, therefore, materially assist the competing car fitted with it. In view of the fact that no particular ingenuity or invention is required for increasing the number of "speeds" in the ordinary type of gear-box, and since four speeds are at present found to be sufficient in practice, it would certainly seem but fair that the number of "speeds" on all Tourist Trophy cars should be limited. Practically any of the cars entered could have been provided with five or six "speeds" if the practice had been deemed advantageous to the buying public, but unless they were all so fitted, they would be competing on anything but equal terms.

The other "gear-box" question arises because there is a distinct advantage to be gained in the way of fuel consumption by making the top "speed" so enormously high that the speed of the engine can be kept quite low when the car is running down hill, and that dangerous racing can then be indulged in. In ordinary touring practice, such a provision has no material merits, since *cost* of fuel is far from being a serious consideration, and, therefore, it would seem advisable that some rule should be introduced in future to restrict the relative ratios of the "speeds" on all competing vehicles.

Another possible difficulty that may have to be dealt with, if the Isle of Man course is always used for the event each year, is that certain (otherwise unusual) gear ratios may be found specially suitable for that particular route. As has been shown already, the contour of the road is such that this would not hold good, to anything like the same extent, if the cars had to travel over it in the opposite direction as well, and the idea, therefore, suggests itself that the direction might be left undecided until the actual start is made, or that if the race were to extend over more than one day, the direction might be reversed on the second day.

TOURIST TROPHY RACE.—A pleasant impression. General view of Douglas from the sea, showing Snaefell over which the Tourist Trophy cars had to climb four times. In the distance, just over the mast of the boat in the centre of the picture, Snaefell can be identified.

Noisiness.

Difficult as it undoubtedly is to find a satisfactory method for preventing any unduly noisy cars from taking part, it is yet very generally agreed—as shown by the numerous letters from correspondents—that such a step is advisable. It may, indeed, be almost regarded as a necessity for ensuring the complete success of a touring-car contest, since, unfortunately, effective exhaust-boxes usually tend to reduce the power and efficiency of petrol engines, and there is therefore a direct incentive to one class of noisiness. It is a matter that will need attention when the time comes for a revision of the present rules; they are now defective, at any rate, in that they do not preclude the use of relief-valves in the exhaust-pipes, for allowing the back pressure to be removed at the will of the driver.

Controls.

Although the establishment of "controls," in the ordinary sense of the word, is doubtless unnecessary, as well as being open to the objection that calculations are involved in determining the true position of each car in the race, yet there are reasons why it might be wise to stop each car momentarily at certain points on the route. Dangerous spots would preferably be selected, thus reducing the risks of accident happening, and another advantage would be that the stopping and restarting powers of the cars would be well tested. Incidentally, moreover, it would assist in that timing of the cars at fairly frequent intervals which is so desirable, and it would enable the officials to affix "lap-indicating" labels in accordance with Mr. Johnson's excellent amplification of the system proposed in our previous article.

Change of Drivers.

Generally speaking, there is apparently a very strong feeling against the suggestion that different drivers should be entrusted with each car on different days—assuming that the race *could* be extended over one day. The point at issue really resolves itself into the question as to whether the main objects of the event are to demonstrate the relative merits of each car, and are to introduce a sporting rivalry between the drivers, or as to whether it is the combined and inseparable merits of car *plus* driver that are to be put on trial. From the purchaser's point of view, it is the car only that interests him, since he requires a good car for his own use only, and from the driver's point of view, anything that will enable him to demonstrate his own superior skill would doubtless be welcomed by him. To them, therefore, our suggestion would doubtless be very acceptable. From the manufacturer's point of view, however, the case is rather different, for it is but natural that those commanding the services of a specially good driver should prefer to benefit by his services to the full. We might point out that it would not be necessary for a firm entering more than one car to provide more than three drivers in all, because three drivers could even be employed on three cars on three separate days without allowing any car to be driven by the same man twice. The point only arises, however, in the event of the race being extended over more than one day in future years, but we are extremely glad to see that the consensus of opinion expressed by our readers in their letters is strongly in favour of that course being adopted, if it is possible to arrange it.

Other Classes of Vehicle.

As can be seen from the details which we have given of the competing vehicles taking part in this year's race, the type

now specified by the Tourist Trophy rules may practically be said to be one having an engine of about 18-h.p., taking a fairly light touring body, and capable of maintaining an average speed well above the present legal limit. It is, in fact, a class of vehicle that is much in demand, and that can be sold at a moderate figure. Obviously, however, it is only one class amongst several, and is therefore one which some of the best known manufacturers do not build. Apparently, therefore, the same reasons that have led to the organisation of this race for "25 mile per gallon" vehicles would warrant similar events being held for other types of vehicle, and we might therefore expect as much success to attend the institution of races for, say, "15-milers" and for "35-milers." The former, with suitable weight-limits for body, load, and chassis, would include those luxurious touring vehicles which are so justly popular with the wealthy, and the "35-milers" would include two-seaters and the "poor man's" light car. The races for each class would naturally be held on quite different days from one another, and the number of "classes" would depend, from time to time, upon what was found advisable.

Whether there were only three or even more "classes," the tendency towards standardisation of types would be welcomed by all those interested in the automobile movement. Motorists would have every chance of holding their own local sporting contests on well understood and sensible lines, whenever they wished to do so. The manufacturer would no longer be called upon to go to the expense and trouble of taking part in all and sundry events, in each and every part of the country. And—not by any means of least importance—the amateur driver would learn more about the proper way to drive his car than he would do in years as at present.

Specified Weights and Dimensions.

Although it is early yet to come to any definite conclusion concerning what the weight limits should be for a "25-mile per gallon" standard vehicle, particularly as opinions differ on the subject so widely, yet it should, we think, be borne in mind that one of the few reasons for specifying a maximum weight for the chassis at all is to prevent a certain kind of "freak" car from being entered. The risk, which is extremely remote, is that some complicated auxiliary machinery—such as a compressed air plant with pumps and a pneumatic engine—might more than compensate, from a race-winning point of view, for the additional weight carried, and thus be fitted to a car for the sole purpose of securing the Trophy. Otherwise it would not really matter if one chassis were somewhat heavier than another, especially as it would automatically suffer from the direct handicap resulting from its additional weight. It would, therefore, seem as though the chassis weight might well be altered to admit those of from 1,300 lbs. (as now) to at least 2,000 lbs. (instead of 1,600 lbs.)

It is hardly necessary to add anything to what has already been said by us and others on the subject of the specified weight of the body and its load. Opinions differ, some thinking that 950 lbs. is too much, and others that it is too little. There is, however, Mr. Wilson's suggestion that each car should be made to carry a glass screen, so as to discourage high maximum speeds, and we think that this deserves careful attention. As he points out in his very interesting letter, the effect of "windage" increases very rapidly at higher rates of travel, and consequently a more equitable average speed would have to be maintained by all competitors.

AERONAUTICS.

ON the 12th of the month the Lebaudy airship gave a further, and in many ways the most significant demonstration it has yet provided of its magnificent capabilities. It executed a regular military reconnaissance between Toul and Nancy, returning to the starting point in 2h. 20m. With Messrs. Rey, Juchmès, Capt. Voyer, and Commandant Juillien, head of the engineering staff of Toul, the airship started on its first strictly military service at 7.30 in the morning under anything but favourable conditions, for there was a thick fog and high wind. Fortunately she had not been long in the air when the sun dissipated the mist, and enabled the engineers to demonstrate to Commandant Juillien what a thorough reconnaissance of a hostile force or hostile works of defence the airship would enable its possessors to effect. Maintaining an average elevation of about 100 metres, the Lebaudy passed over the great works and

entrenchments surrounding Toul, and beat against the north-easterly wind to Nancy, where she went about above the town saluted by the plaudits of the multitude, and started back again for Toul, accomplishing the return journey in 41 mins., as the wind then somewhat favoured her; 423 kilos. of ballast were carried, and of these only 100 were thrown out, 30 being accounted for by the process of mooring, so that, had it been necessary, it is obvious the airship might have maintained herself in the air for at least four times as long as she was actually up.

This performance, which ranks with Lebaudy's best exploits from the purely physical point of view, is epoch-making in the history of navigable ballooning, as it is the first occasion on which an airship has ever been used for a reconnaissance on strict military form, starting from a certain point, and returning to it again, in spite of adverse atmospheric conditions, and a considerable breeze.

CLUBS AND ASSOCIATIONS.

Blackheath A.C.—A pleasant termination of the club's out-of-door fixtures, which was well attended, took place last Saturday when a circular run terminated at the Bull Hotel, Chislehurst, where about fifty sat down to tea. An informal meeting was subsequently held, at which Col. H. C. L. Holden, R.A., F.R.S., took the chair, when the prizes won at the club's hill-climb at Ightham on July 8th, and at the gymkhana on September 2nd, were presented, consisting of carriage clocks, claret jugs, and other useful articles. Subsequently music and an impromptu dance brought the proceedings to a close at about 8.30 o'clock.

Ladies' A.C.—On Thursday next week, the Honourable C. S. Rolls will give an illustrated lecture before the members of the club, entitled "Historical Reminiscences and Roadside Experiences," which will be followed by biograph pictures of recent racing events. The series of technical lessons which were much appreciated last winter are to be repeated this season. The six lessons will again be given by Mr. R. Sedgwick Currie, the club engineer, and will be held respectively on November 8th, 15th, 22nd, 29th, December 6th and 13th.

Manchester A.C.—The last run of the season took place on the 7th instant to Nantwich, when, although the weather was extremely bad, over twenty cars assembled to do honour to the occasion. Nearly seventy members and their friends were present at the Brine Baths Hotel in the afternoon prior to starting on the home journey. The club's first house-dinner takes place on November 1st, and will be followed by a smoking concert. The second is down for December 4th, to be followed by a Paper by Dr. W. R. Ormandy, on "Explosion and Flame in Relation to Motor Car Engines."

North London A.C.—The club's first annual dinner will take place on November 25th, at the Midland Grand Hotel, when a special programme for the entertainment of the guests will be arranged to follow. Colonel Bowles, M.P., will occupy the chair, Mr. A. W. Gamage being in the vice-chair.

Notts A.C.—The winter season of this club was inaugurated on Friday last week by a very successful supper at the Black Boy Hotel. The meeting, which was well attended and was presided over by the President, Mr. Charles Hardy, proved of considerable interest amongst the members, it being the occasion for the distribution of the prizes awarded in the various club competitions decided during the past season. These included the Wilson Cup (which was disputed on the Clipstone track, Welbeck), the Foster Cup competition prizes, and the two Ab-Kettleby Hill-climbs

awards. A surprise was sprung upon the meeting by the presentation to Mr. S. F. Edge of a gold medal, in recognition of his sportsmanlike courtesy in sending his racing Napier car down to the Skegness Meeting. In regard to this meeting Mr. Booth Grainger, the hon. secretary, announced that, in consequence of its great success, permission had already been received from the A.C.G.B.I. to hold another meeting there next year.

Scottish A.C. (Western Section).—The annual autumn meet took place at Ayr last Saturday. There were fully fifty cars present in the enclosure at the Station Hotel, where the party took lunch. The day was cold, wet and stormy, and the turnout was consequently a large one under the circumstances. In deference to considerations of public policy, the gathering in Glasgow, and the procession through Glasgow, *en route* to Ayr, which has taken place in connection with this event for some years, "in commemoration of the passing of the Light Locomotives Act, 1896," was this year abandoned.



CORRESPONDENCE.

ENGINE BRAKING.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I am sorry that the results which I sent you in reference to the census which I had taken in regard to the best system of connecting up brakes and engine appears to have been slightly misunderstood by some of your correspondents.

They appear to think that I have only recently taken to using a car in this way myself; this, however, is a slight mistake on their part, and I am afraid that they cannot take credit to themselves for having used the principle prior to myself. My own Napier cars since 1900 have always been so used, but the alternative system is one that was provided for by the French Government, and it was necessary for a car to conform to these conditions to be officially passed as a type in France, and without such passing, it was not legal to run the car on French roads.

For the convenience, therefore, of owners of Napier cars who used them in France, we made them so that they would conform to French law, but at the same time we made an arrangement so that either brake can be disconnected from synchronising with the movements of the clutch.

Finding, however, that many people were beginning to use their cars in what I had found to be the best way, I had the census taken, which I communicated to your paper for the information of all automobilists. I had no idea of claiming priority of the idea, but cannot allow your present correspondents to think that they can claim to be first when such is not the case.

Yours truly,
S. F. EDGE.

Oct. 14.

MOTOR ROAD ROLLER IN ST. JAMES'S PARK.—The latest sphere of the petrol motor is the propulsion of road-rollers, and the first of these machines was exhibited by Messrs. Barford and Perkins at the last Park Royal Show, and is now in use in St. James's Park, which is the scene of our photographs above. The roller is water ballasted and is propelled by a single-cylinder petrol engine.

Motor omnibuses are not only increasing rapidly in London, but in country districts in all parts of Great Britain, their enormous mobility and convenience is becoming appreciated more and more daily. A service which was agitated for over a long period by the local residents has recently been inaugurated by Messrs. John I. Thornycroft and Co., Limited, between Farnham and Haslemere Stations, in connection with the London and South-Western Railway Company. We are able to reproduce this week photographs of these new public cars, one being seen in the above passing over the level crossing at Farnham.

Continental Touring by Motor 'Bus.—Perhaps the most enterprising personally conducted tour which has ever yet been arranged is being organised by the London Motor 'Bus Company, who are now booking seats for a tour through France to Monte Carlo and Mentone on one of their newest "Vanguard" 'buses, of the type which has become so popular on the route between Waterloo and Cricklewood. The whole tour will occupy thirty days, and will commence on the 18th November, the charge for the trip, which will embrace Rouen, Orleans, Montelimar, Avignon, Orange, Marseilles, Hyères, and St. Raphael, returning *via* Grenoble, Dijon, and Paris, being £52 10s., which includes not only first-class by boat across the Channel, and by rail from London for those who prefer so to travel, but also hotel accommodation, travelling tickets, meals *en route*, and the services of a competent conductor. Only sixteen passengers will be booked, so that whenever the weather is unpropitious there may be adequate room inside. With the same object in view, the personal luggage carried on the motor 'bus will be limited to about half a hundredweight per passenger, though any greater amount which the tourists desire to take will be sent for them free of charge ahead by rail to the different stopping places. The whole thing is a most original departure, and we wish every success to the enterprising undertaking of the Motor 'Bus Company. In any case, it will provide a triumphant object lesson on the reliability of the motor 'bus.

The Tramway Octopus.—What the tramway people will do if they are not stopped is pretty well demonstrated by

the sad case of the Kingston Bridge, which is one of the narrowest bridges over the River Thames. It is only 25 ft. wide altogether, and when the footways are subtracted, a carriage way of 16 ft. 9 in., just 9 inches more than the narrowest road along which motor cars are allowed to run, is left over. Across this narrow pass have been put down two lines of tram rails, so that when the trams are in possession of the bridge, it is perfectly obvious that nothing else can attempt to cross from one direction or the other, as between the outer rail on one side is a space of only 15 ins., and on the other 24 ins. It is no wonder, therefore, under the circumstances, that a petition has been presented to the Board of Trade requesting that tram cars may not be allowed to run until the bridge is widened. This is the borough, by the way, in which two separate attempts have been made to induce the Local Government Board to impose the 10-mile limit on motor cars.

A New Form of Police Trap.—A novel form of *police trap* is reported in a local paper. In this trap, as it happened,

it was the policeman who was the victim. The report is as follows:—

"A Leyton policeman came across a rambling donkey on the highway, and decided to take it into custody.

"When he got within a few yards, however, the donkey reared on its hind legs, jumped at the officer, tore his trousers and kicked out in all directions.

"At Stratford the moke's owner was fined for allowing it to stray."

1 person killed per 2,772,000 miles travelled by motor cars.

1 person injured per 125,000 miles travelled " "

The above are results obtained from data collected by the "Joint Committee," from members of the A.C.G.B.I. and Motor Union.

One of the 24-h.p. standard single-decked Thornycroft 'buses which are running in connection with the London and South-Western Railway between their Farnham and Haslemere Stations, the 'bus loading up at the Royal Deer Inn. The road over which this service runs is of a very severe nature and is traversed twice daily. Since its start early in September, the distance travelled by this omnibus is over 1,500 miles, the schedule time table being strictly adhered to throughout.

Nationalisation of Roads.—Mr. Rees Jeffreys has adopted an opportune moment for reiterating in the form of an interview his views on the road management question, which he has so ably and persistently maintained for a considerable period. The expression of Mr. Rees Jeffreys' views was evoked by the suggestion put forward by a certain Colonel Lockwood, M.P., that the roads of the country should be "pooled." Colonel Lockwood was not by this expression referring to any aqueous method of dust elimination by flooding or otherwise, but to a proposal that the maintenance of roads throughout the country should come out of one fund, to which motorists should be made to contribute handsomely. Mr. Jeffreys' view is that:—

Sooner or later the State would assume more responsibility for the upkeep of main roads. Even at present it contributed very largely to the maintenance, and it was altogether incorrect to say, as some people constantly reiterated, that the farmers were the chief contributors to their upkeep. Local taxation was regularly assisted by Treasury grants, but as these grants were not earmarked, the fact was unfortunately often lost sight of. The Roads Improvement Association had always maintained that the State should provide a definite proportion of the cost of maintaining the main trunk roads on condition that they were kept up to a certain standard of efficiency. A similar system had been found to work well in the case of the police, and there was no reason why it should not do so in regard to road administration.

In reply to a question as to whether motorists should not pay a special amount to road maintenance, it is satisfactory to find Mr. Jeffreys replying that "in his view they undoubtedly paid more than their fair share at present, as car owners really did much less to injure the high roads than other road users."

We have always supported Mr. Rees Jeffreys and his roads propaganda, but one certainly wonders at times why the French system of control and support of all the

During the tour of Their Royal Highnesses the Prince and Princess of Wales in India, provision has been made for every possible requirement. Special balloons are being sent out to enable birdseye views to be obtained of various typical cities of India, and motor cars are also to be brought largely into requisition. The above well-designed model has been dispatched to Bombay for the use of Their Royal Highnesses. The car is one of the latest Argyll models, it having been specially constructed at Glasgow, under the order of the Earl of Shaftesbury. The car is painted cream colour and upholstered in blue and has a specially-designed canopy with sun-blinds and windows. It is seated for seven.

main trunk roads of the country by the State should not be adopted in this country, or at any rate inscribed upon the banner of the Roads Improvement Association. Perhaps it is mere despair in regard to the chances of such sweeping, though necessary reform that prevents this from being done.

This view we are pleased to see is taken by Sir Charles MacLaren, M.P., who stated at a recent meeting of the last Chamber of Commerce:—

"I have long been of opinion that main roads ought to be taken up by a national authority. The subject is now becoming of pressing importance, inasmuch as motor car traffic, which monopolises so many of our main roads, and which, no doubt, renders their upkeep more expensive, is not a local traffic, but, having regard to the long distances traversed, national in character."

MR. LEVESON SCARTH, who is ever ready to wield his powerful pen on behalf of the automobile movement, has written to a recent number of the *Onlooker* a letter, from which we cull the following admirable passages:—

But take the wider point of view. Motoring is not a pastime like coaching, destined always to remain the recreation of the few. It is the greatest discovery in locomotion for the million since the advent of railways. It will, when developed (say in ten or twenty years' time) change the whole aspect of the habitable world. It is practically annihilating distance and enabling people to live where they like instead of where they must, to enjoy the country whilst they work in the towns, to range at will for forty miles round their houses—everyone can fill in the advantageous possibilities for themselves.

The "rich," who are now so hateful to writers who deplore their "brutality," are merely pioneers in this beneficial movement, unconscious perhaps of anything so lofty as a mission, but nevertheless pioneers. Their expensive experiences are teaching motor car makers, in the only really valuable school, how to remedy defects, to strengthen weak points, and finally to evolve a machine of some standard type which they can in future manufacture in considerable numbers, and, therefore, profitably and cheaply.

Many persons do not desire any such change. I condole with them on their misfortune in living a century too late for their own comfort.

Many unreasonable persons who wish for the end cavil at the means. They would gladly welcome cheap and trustworthy cars, with tyres that would never give trouble, and engines that would never break down, but they revile and fine those very persons whose money and energies are evolving for them exactly what they eventually want.

THE PRINCE AND PRINCESS OF WALES' TOUR IN INDIA.—A view from the front of the special Argyll Car shipped to Bombay for the Royal use.

The new "Arrow" line of omnibuses, which are plying between Charing Cross and Putney, are running very successfully since their inauguration, our photograph showing one of the first put on the road. These omnibuses, which are put in service by the London and District Motor 'Bus Company, Limited, have a Straker-Squire chassis, with a four-cylinder engine, the carriage portion being by Messrs. Dodson.

1906 Motor Boating.—A meeting of the joint committees of the British Motor Boat Club and Motor Yacht Club was held last week, when there were present: Lieut. H. G. Vereker, R.N., Messrs. F. C. Blake, H. T. Arnott, and R. Denys Dundas (representing the B.M.B.C.), Lieut. Mansfield Cumming, R.N., Messrs. Linton Hope, Bernard Redwood, T. Thornycroft and G. F. Sharp (representing the M.Y.C.).

Lieut. H. G. Vereker was in the chair.

It was unanimously decided that the foreign clubs should be asked to appoint a delegate to discuss next year's programme, so as to avoid clashing of dates during the forthcoming season.

It was also unanimously decided to ask the Marine Motor Association to keep a register of boats and allot a registered number to each one, charging a small fee for the same.

A GERMAN, of the euphemistic appellation Smeltz, on observing Frederick Bartley cleaning, or attempting to clean, a motor car with paraffin at the Hampstead Garage, suggested that petrol would be more effective. Smeltz thereupon syringed the car and engine with petrol and proceeded to go home, the lamps of the car being lighted at the time. He had hardly left when there was a loud report, the whole place appearing to be enveloped in flames, and Bartley rushed out with his clothing ablaze, and subsequently died from the burns. We believe that Smeltz is still at large without a keeper.

Leeds Police and Motor Cars.—A similar example of magisterial good sense

provided by the stipendiary magistrate is, before whom Mr. C. P. Wilson, secretary of the Yorkshire Automobile Club, was arraigned for causing an obstruction by leaving his motor car by leaving it standing a time variously estimated from ten to fifteen minutes, outside the Great Northern Hotel. The magistrate decided in favour of the defendant on the evidence only of the prosecution, and said that he always considered that it was not right to summon a person for an obstruction unless they had been warned or told to move on. It was then that obstruction became wilful, and he had always said that convictions should not take place if people were merely warned without being warned. There must be some evidence of actual obstruction, and there was none in this case, and he accordingly dismissed the summons.

A petrol blaze which occurred at Cornhill last Tuesday, close to the Royal Exchange, is a sad example of the evils that result from attempting to deal with a petrol fire by the ordinary methods of the fire brigade. A motor van laden with a number of petrol cans, most of which we understand were fortunately quite empty, was proceeding along Cornhill, when from some unknown cause flames burst out all over it, the petrol cans exploding one after the other, a considerable quantity of petrol flowing on to the street. The fire brigade, which was soon on the scene, played upon the conflagration with hose pipes, the result being that the escaped petrol was caused to flow on the surface of the water a considerably extended distance along the street. Ultimately sand was procured and the conflagration extinguished.

Lurries for motor ambulance work are very necessary helps to automobile repairers. Notice of a bad smash-up requiring prompt assistance, often causes considerable inconvenience by reason of the difficulty of obtaining a suitable conveyance for bringing the car into "hospital." Most of the up-to-date repair works have now acquired this very necessary piece of "furniture," and the above illustrates a Milnes-Daimler lorry which has just been adapted by Messrs. Rennie and Prosser, Limited, of Glasgow, for their motor ambulance work. It is fully equipped to undertake breakdowns on the road, and our photograph was recently secured upon the occasion of its arrival at the firm's works with a disabled car.

THE Executive Council of the Urban District Councils Associations is gathering its forces and inviting U.D.C.s to consider the evidence to be put before the Royal Commission on the Motor Car Acts.

THE New South Wales Legislative Council have passed the Government Motor Omnibus Bill through the Committee stage, during which period an amendment was carried, providing that motor omnibuses shall be subject to the ordinary traffic regulations, except with regard to licensing.

A FINE testimonial for police stop-watches was provided recently at the police court at Norton, when Mr. Herbert Pickles, of Bradford, was summoned for driving over a measured quarter of a mile at upwards of twenty-three miles an hour. Two policemen came up to give evidence, each armed with stop-watches, but as the stop-watches differed by $\frac{2}{3}$ secs. in their indications, the bench dismissed the case, preferring to rely upon the defendant's speedometer, which showed the car to have only travelled at eighteen miles per hour.

SOMEONE—presumably a humorist—suggests that a good name for the motor 'bus would be a "buzzer," on the analogy of a "whizzer," which, he says, has become the recognised name of the electric tramcar. If these names are to catch on, a Londoner's diary will make interesting reading in years to come. It will probably puzzle philologists of the future to decipher such an entry as this: "Tubed from Bank to Tottenham Court Road, 'buzzed' to Elephant, and 'whizzed' home."

COURT recognition of the motor car has developed to such a degree that, it is stated in the general Press, one of the unwritten laws of Royal entertaining is that any of his subjects whom King Edward honours with a visit are expected to have a motor car at his disposal in case of need, either for passenger or for baggage service. As a matter of fact, the King himself almost invariably takes his own car and chauffeur with him, but when Royal messengers arrive or depart it is expected that they will be accommodated with an automobile.

THE motor car horn is surely loud enough, in all conscience, for the purposes which it has to fill, and the inventor of the motor siren may certainly lay claim to belonging to that type of genius who makes a speciality of inventing things that are not merely not needed, but are positively noxious. At least this appears to be the general opinion of the inhabitants of Suresnes, just outside Paris, who are organising a crusade against the use of the siren. A siren is driven off the engine, and it emits a howl (when the engine is running fast) which can be easily heard, so the Suresnes people say, five miles off. We believe there have been some attempts to introduce this disturber of the peace into this country. Considering the amount of hostility that the automobile movement has quite unjustifiably evoked already, we trust an organised attempt will be made to put a stop to the introduction of such an wholly unnecessary innovation that can only have the effect of making every body justifiably furious with automobilists who use it.

AMONG the humorists who are making anti-automobile-mania look even more ridiculous than it otherwise would, one who has adopted the *nom de guerre* of "Pulvis" suggests that motor cars should, in future, be compelled to raise a dust in front of them instead of behind them, as, in that case, the occupants of the cars would have more consideration for the effect they produced. Doubtless they would, and if "Pulvis" can succeed in designing a car which will succeed in doing this, it will certainly deserve mention as a curiosity.



COMMERCIAL POINTS.

A MOTOR garage and repair department has been opened at Crown Hill, Croydon, by Mr. L. H. Turtle, under the management of Mr. F. G. Milne. A staff of qualified engineering mechanics and motor specialists is constantly on the premises, and Mr. Turtle advises us that he proposes executing all work, which will be of the best quality, at the lowest possible charge. A special scheme of "maintenance" and periodical reports is to be introduced, particulars of which are to be issued later.

DURING the manoeuvres of the French 5th Army Corps, which took place at Mirabeau, under General Duchene, the Minister of War occupied a seat in a 4-cylinder 12-h.p. Clement car, driven by M. Fenton. Prior to reaching the scene of the manoeuvres, the car (with the Minister of War as passenger) travelled long distances. In a single day M. Fenton, we learn, ran from Mirabeau to Troyes and Brienne for the great manoeuvres of the East, under General Brugère. M. Fenton states that his was the only car present to go through without a single "panne."

THE Petromobile Company, Limited, announce that they have taken over the business in all its branches, and the premises, carried on previously by the Locomobile Company of Great Britain, Limited, at 54, Sussex Place, South Kensington, S.W. In addition, the Company will have works at 45, Goldhawk Road, Shepherd's Bush, where the facilities for all repairs, both in connection with petrol and steam cars, ensure their being rapidly carried out.

SUCH a very large number of automobilists are also golfers, that it may interest many of our readers to learn that a golf scoring card has just been issued by Messrs. Humber, Limited. This card is supplied free to any golf club, with name, &c., printed at the head, by Messrs. Humber, Limited, of Beeston, Notts, upon application. The arrangement of the card is simple and comprehensive.

THE HON. STEPHEN COLERIDGE, who recently had such a very wordy passage of arms with the Andover road "banditti" and their superiors, has, we learn, just indulged in one of the new type 15-h.p. Orleans cars.

"Managed by a lady with ease" is the verdict of Mr. W. Watkins, of Peringa, Newport, Mon., in regard to his 9-h.p. Oldsmobile which he recently acquired, and which is seen in our photograph, with Miss Watkins at the wheel, about to start on a 60-miles run.

ANOTHER example of the nice sort of spirit that animates local authorities of the more provincial order, is provided by the case of the Folkestone Watch Committee, who, at its last meeting, solemnly listened to the following proposals put forward by the Chief Constable:—

"That local authorities should have power to fix the maximum rate of speed in towns and villages without reference to the Local Government Board; magistrates should have power to suspend or revoke licences to drive for any offence connected with the driving of a motor car, also in serious cases to revoke the registration of the car or to order the car to be impounded for a stated period, and to order the defendant to pay the cost of the car being stored; all convictions for offences relating to the driver of a motor car should be endorsed on the licence; the owner of the car should be compelled to give the name of the driver for any offence alleged, or when any accident to any person or animal has taken place; failing to do so should be an offence for which the owner may be proceeded against in the district where the alleged offence by the driver was committed or the accident occurred."

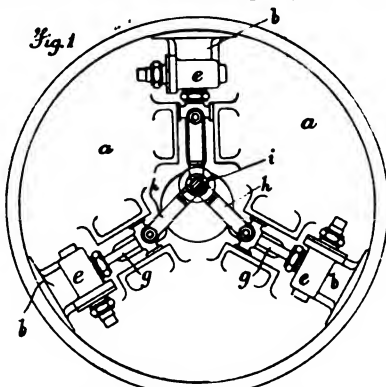
We are informed that the subject is to be further discussed by the whole body of the Council; probably it is just as well that the powers of this august body are limited to discussion.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.L.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

24376. 10th November, 1904. Improvements in and relating to Clutch Mechanism. William G. Clifton, A.M.I.M.E., 35, Stavordale Road, Highbury, London, N. This invention relates to clutch mechanism which is more especially designed to be attached to and work in conjunction with a flywheel. The connection between the driving part and the driven part of the clutch is provided with means for varying the frictional resistance from a free drive, passing through various stages of slipping up to a positive drive. To obtain this variable resistance the clutch driver is provided with a number of cylinders, and the driven part with pistons movable in the cylinders, a liquid, such as oil, being circulated by the pistons. The resistance offered to this circulation of oil is determined by valves interposed, so that when the valves are fully open the driver revolves idly, and when the valves are fully closed the driven part revolves positively. Intermediate positions of the valves afford slipping between the driving and driven parts. There are two figures. Fig. 1, is a front elevation of the flywheel. The flywheel, *a*, is provided with a number of cylinders, *b*, which are integral with the flywheel, and extend radially inwards from the periphery thereof. They are furnished with passages communicating together through a valve or cock, *e*. Each cylinder, *b*, is provided with a piston, which by means of a piston rod, *g*, is secured to one end of a connecting rod, *h*.



The rods, *h*, at their other end, are mounted on a crank pin or crank pins, *i*, of a crank-shaft forming the clutch-shaft. This shaft is in line with, but separated from the flywheel shaft. Upon the shaft is loosely fitted a sliding collar, which by means of an arrangement of links or levers, opens and closes the valves, *e*, simultaneously. The cylinders, *b*, and passages are filled with this oil or other suitable liquid, which can be either circulated by means of the piston or serve to buffer the latter. As the flywheel or driver revolves (the driven shaft being stationary, and the valves, *e*, being open), the liquid is forced by the pistons in their reciprocating move-

ments through the passages and through the open cocks, *e*, from one end of the cylinder to the other. The crank pin, *i*, of the clutch-shaft being eccentric to the shaft of the pistons moves outwards in turn. When the valves, *e*, are closed the circulation of fluid is stopped, and the pressure of the fluid in each of the cylinders acts on its piston, and the latter by means of the rods, *g*, *h*, causes the crank pin, *i*, to rotate the clutch-shaft. The amount of slip in the clutch necessary when starting to drive the load or at other times is obtained by opening the valves, *e*, to the extent required.—September 27th, 1905.

25157. 10th November, 1904. Improvements in Two-Stroke Cycle Internal Combustion Engines. John W. Seal, 37, Westcroft Square, Hammersmith, London, W. This invention relates to internal combustion engines of the two-stroke cycle type, and has for its object an improved form of engine wherein the cylinder is self-scavenging, whilst the valve which conveys the charge from the compression chamber to the working cylinder serves to store the compressed charge, only admitting it to the working cylinder at the proper moment for operating in the latter. There are three figures or diagrams showing three different positions. Fig. 1 illustrates the cylinder and valve of this engine; *a* is the working cylinder, *b* the working piston having an enlarged diameter at *c* which constitutes the pump-piston. *d* the valve, *e* the principal exhaust port of the cylinder,

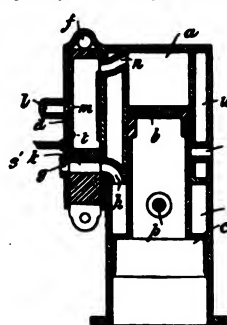


Fig. 1.

a subsidiary exhaust port, *g* the inlet port for the air combustible mixture, *h* a port in the cylinder wall communicating with the compression chamber, *i*, above the piston, *c*; *k* a slot or passage in the valve, *d* adapted to bring the port, *h*, into communication with the port, *g*; *l* the igniter or ignition chamber; *m* a port in the valve, *d*, adapted to communicate with the igniter; *n* the port leading into the working cylinder, *a*; *w*, water jackets; *p*, the piston pin. The valve, *d*, is operated from a cam or eccentric on the crank-shaft. The inlet for a jet of water, steam or the like at *s* and the non-return valve, *t*, in the valve, *d*, is adapted to communicate with the port, *s*,

in the topmost position of the valve. It is assumed that the piston, *b*, is making its working stroke with the gases coming from the interior of the valve, *d*, and reaching the cylinder, *a*, through the port, *n*. Simultaneously a charge of air, gas and air, or vapour and air is being drawn into the compression chamber, *i*, through the ports, *g* and *h*, and valve passage, *k*. As the piston, *b*, approaches the end of its stroke it uncovers the exhaust port, *e*, through which the gases escape. The valve, *d*, is descending, and has just cut off the opening for admission of gas through the port, *h*. Whilst the piston is at a dead centre the valve is moving downwardly rapidly, and by the time that the piston is at about half-position the gases from the compression chamber, *i*, are being passed through the passage, *h*, into the interior of the valve, *d*. Any gases that remain in the working cylinder, *a*, are being expelled through the port, *n*, and additional exhaust port, *f*. During the remainder of the in-stroke the valve, *d*, rises gradually, cutting off communication between its interior and the compression chamber, *i*, and also between the cylinder, *a*, and additional exhaust port, *f*, and finally just after the piston has reached the top of its stroke the port, *m*, comes into communication with the igniter, *l*, whereupon the compressed gases in the chamber of the valve, *d*, are ignited. The gases passing through the port, *n*, operate upon the working piston, and the working stroke ensues, whilst a fresh charge is drawn into the compression chamber, *i*, as before explained. In order to prevent overheating of the valve chamber and cylinder and to reduce danger of pre-ignition it is preferable to inject water or steam into the valve, *d*, at the end of the working stroke. For this purpose the port, *s*, is connected with a supply of steam or water under pressure, and the non-return valve, *t*, serves to allow the steam or water to enter the interior of the valve, *d*. The steam admitted or formed in the valve drives out the waste gases before it, and also cools the valve and cylinder.—September 27th, 1905.

Patent Specifications Published.

Applied for in 1904.

- Published October 19th, 1905.*
 20,909. J. P. ATKINSON. Emergency brake.
 22,026. O. LATIMER. Non-slipping tyre covers.
 23,227. C. Y. HOPKINS. Motor road vehicles.
 24,974. — HEISLER AND I. BZDUCH. Variable speed gear.
 25,235. J. T. TAYLOR AND W. LAWSON. Ignition plugs.
 25,740. T. DAVAGE. Armouring tyres.
 25,761. W. J. YAPP AND E. H. GIRLING. Non-skid protectors.
 23,814. A. ALLTREE. Valve opening and ignition gear.

Applied for in 1905.

- Published October 19th, 1905.*
 486. C. B. CAVE-BROWNE-CAVE. Rims for wheels.
 2,127. H. CAMPBELL. Intl. combn. engines.
 9,552. O. J. BAMPFORD. Motor lawn mowers.
 10,962. J. POLKEY. Lamps.
 14,182. E. MAINONGRANDE. Fittings of lamps.

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A LICENCE, ITS ENDORSEMENT, AND OFFICIAL ACKNOWLEDGMENT OF A FALSE CONVICTION.—
Above we reproduce the driving licence of Mr. Frederic Coleman showing the original endorsement by the "justices" of the Borough of Colchester, of a conviction for "driving to the danger" of the public, which is now seen to be cancelled and underneath a permanent record of "error" on the part of the Borough "justices" substituted. We deal with this case elsewhere in the present issue.

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AIX-**LES-BAINS**, A. Gerente, 32 Rue de Genève, and F. Mabboux, Place du Revard.
BADEN **BADEN**, Otto Ryssel, 42 Lange Strasse.
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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.
Nov. 8, 15, 22, Practical Lessons on Motor Cars (Ladies' 29, Dec. 6, 13 A.C.).
Nov. 10 or 17 *Quarterly 100 Miles Trials.
Nov. 17-25 ... Society of Motor Manufacturers and Traders Exhibition at Olympia.
Nov. 25 ... North London A.C. Annual Dinner.
Dec. 4 ... "Explosion and Flame in Relation to Motor Car Engines," by Dr. W. R. Ormandy (Manchester A.C.).

Foreign Events (Trials, Races, &c.).

1905.
Nov. 21-27 ... French Voiturettes Trials (*L'Auto*).
1906.
Jan. 26-30 ... Calcutta Motor Trials.
April 1-15 ... Monaco Motor Boat Exhibition and Races.

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

Another Aspect of the Traffic Problem.

WE referred last week to the discrepancy between the report of the technical advisers to the Royal Commission on London Traffic, and the recommendations which, not as a result, but in more or less flat contradiction of their advisers' suggestions, the "inexpert" members of the Commission have put forward. The absurdity of the situation has had one beneficial effect. It has awakened the general Press of the country in an even more marked degree than ever we remember before, to the absolute necessity of the problem being seriously tackled, and to the enormous loss which results to the trade and wage-earning capacity of the community as the result of defective traffic, and the manner in which even such traffic as exists is interfered with by the fantastic manipulation of our streets.

The three distinguished engineers who have been going into the subject fully and exhaustively, report that the wage-earning capacity of those employed in Greater London is upwards of 173 millions per annum. Needless to say, a large proportion of these people are employed in services which necessitate going from point to point, and it is worth employers' time to pay this immense sum for services, it is obvious that every time a road is up and 'buses are compelled to take one of the customary detours, the loss in value runs into enormous figures. Indeed it has been computed that the loss of a quarter

of an hour out of a working day of eight hours would mean on the total earning capacity of Greater London a loss of nearly six millions annually. This, at any rate, is the calculation of Sir J. Wolfe Barry and his colleagues in their report on the loss to the inhabitants of the Metropolis due to the lack of proper travelling facilities. The corollary from these estimates, of course, is that with the immense increase in rapidity of locomotion which the engineers to the Royal Commission on London Traffic have proved to characterise the motor vehicle, a corresponding increase in value to employers would result. This is only one of the many, and possibly not one even of the most important, results that will follow the universal adoption of the motor 'bus, but it is an important one, none the less, and it is worth noting.

A Splendid Piece of Work.

THE thanks of all automobilists are due, and will, no doubt, be accorded, to the Joint Committee of the A.C.G.B.I. and Motor Union for the splendid collection of data and statistics which have been collected, during recent months, for the information and assistance of the Royal Commission on Motor Traffic. The whole automobilist case has been collected and systematised, as the result of these labours, in the most comprehensive manner imaginable, and the cogency of the conclusions reached, which are supported by the most accurate and incontrovertible reasoning, has been confirmed by the compilation from first sources of returns dealing with practically all the main questions under dispute. Of these, needless to say, we can only mention a few, but as illustrations of the thorough way in which the work has been done, we would observe that returns have been obtained from thousands of doctors using motor cars for their professional work, from coroners relative to the comparative dangerlessness of the new locomotion, and statements of public men condemning the hard and fast speed limit, while, in addition, the effect of the automobile in increasing the value of property is illustrated by comprehensive returns from valuers and house agents. In fact, the labours of the Joint Committee, with its staff of enthusiastic clerks and assistants, who have often been working till 12 o'clock at night for weeks together during recent months, and Messrs. Mallam, Perrin and Sharpe, who have assisted the Committee in every possible way, have resulted in the compilation of as fine a case for a great movement and a great industry as ever was prepared for the assistance of a Government inquiry. When we say this we would desire to bestow a special meed of praise and recognition on the hard work and admirable management of Mr. Rees Jeffreys, who has been, from first to last, the guiding and, we may say, the inspiring spirit of the labours of the Joint Committee and those who have co-operated with them.

Poetic Justice.

THE inhabitants of Andover are beginning to have more than enough of their county magistrates, and the tactics which have led to the district attaining so unenviable a degree of notoriety in automobile circles. The Andover Road has, of course, become taboo. No motorist now proceeds along it except by accident or through having lost his way, for he knows that should he fall into the police trap on that road the speed at which he is proceeding is quite immaterial. He will be summoned however moderate it may be, and with equal certainty Colonel "Handover" Harmar and his

coadjutors will convict him. The result is that Andover, which was once alive with motorists, is now almost deserted, and the traffic and business which once was brought to it, is now deflected to other towns like Whitchurch and Basingstoke. To what an extent the "legalised brigandage" of Andover has affected the traffic in that magisterial preserve, may best be gathered from the fact that in place of many hundreds of cars which passed there weekly, almost daily, during the whole of Saturday last *four only passed*, and on Sunday *five only*, while needless to say that with the A. A. Scouts "out" in the district, the traps bristling with "Hedgehogs" were at a discount. Needless to say the Andover tradespeople and hotel-keepers have suffered considerably, and are now adopting towards the Andover Bench an attitude very similar to that which the Reigate townspeople took up towards the Reigate Bench when that august body pursued similar tactics. Matters are made worse for the townspeople by the fact that the officers at Tidworth Barracks and on Salisbury Plain have adopted the same attitude as motorists, and have refused to come near the town. The feeling of the townspeople has been embodied by a prominent Town Councillor, Mr. H. C. Hammans, who disowns all connection between the magistrates (and the police, who are controlled by the county authorities) and the town. Councillor Hammans is a brewer, and no doubt he finds that the consumption of fine ales has been considerably diminished by the "Handover" tactics of the county Bench, while another prominent tradesman of the town declares that if a poll of the townspeople of Andover were taken 99 per cent. of them would demand more rational treatment for motorists. It is the usual story. A body of irresponsible and narrowminded crotchety magistrates, interfering not only with the enjoyment of other people with whom they do not sympathise, but with the business and prosperity of a whole neighbourhood, out of sheer prejudice and dislike of a new development.

The following is a further practical illustration of the effect this "administration" of justice is having on the district. Mr. A. Halstead, in writing upon the subject to the *Andover Advertiser*, has published the following letter which he received from Sir Charles McLaren, Bart., in response to an application on behalf of a movement to benefit the working men of Andover:—

"In reply to your letter, I may say the only thing I know of Andover is the legalised brigandage organised by your magistrates for the plundering of motorists near your town.

"Being an advocate of fair play and common sense, I will have nothing to do with Andover under the present conditions.

CHARLES McLAREN.

"43, Belgrave Square."

"Danger to the Public" Must be Proven.

At the end of August last, Mr. Frederic Coleman was charged before Essex magistrates with having driven to the public danger at Lexden. He was defended by Lord Russell, and the case presented some amusing features, particularly, as usual, in regard to the police evidence, the constable who stopped Mr. Coleman refusing to admit in the witness-box what he had said on the road, that there was no danger to anybody, and when asked if he thought there was any danger, observed that it was "not for him to think," though he finally, reluctantly, admitted that the car was pulled up, even at the speed at which it was going, in a distance of about thirty feet. In spite of the evidence, however, even of

the police, which ought to have secured, one would have thought, a dismissal of the case, the Bench convicted Mr. Coleman, though they only fined him 40s. and 13s. costs. Lord Russell gave notice of appeal, and this appeal has now been heard at Colchester, with the result that the conviction has been quashed, Mr. Coleman awarded full costs, and his licence re-endorsed with a revocation of the previous conviction. Now this is a very important decision, the ground on which the Quarter Sessions Court arrived at it being that where danger to the public is asserted, under Section I. of the Act, that danger must be proved, and the result is emphasised by the circumstance that the Court was presided over by the trained legal intelligence of the Recorder. This is important, first of all because it adds one more to the long list of Quarter Sessions decisions in which this point has been maintained. In fact, it is scarcely too much now to say that it is a point which is universally recognised by Quarter Sessions Courts. In the second place, Mr. Coleman was awarded costs, a point of almost as much importance as the reversal of the original magisterial decision. Petty Sessional Magistrates do not like to have their decisions reversed in any case, but if they are reversed without the appellant receiving costs their equanimity remains comparatively unruffled. The award of costs produces more effect on their minds (if any) than any number of adverse decisions without costs will do. We hope the precedent of Colchester, therefore, will be generally followed. In that case, we may look forward to magistrates being more careful in the decisions they give on the question of driving to the public danger in the future.

A Hoary Canard.

SOME time ago we gave currency to a statement to the effect that in 1904 motorists had been deprived in fines, by the combined machinations of magistrates and police throughout the county, of the substantial little sum of £218,000. As we found the statement in an official publication, *i.e.*, the club Journal, we had no hesitation in giving it further currency in our columns. In due time the *canard* in question, after fluttering through the Press for the proverbial period of nine days, was at length laid to rest. Now, some months afterwards, it has been dug up by an enterprising contemporary, and started on a new flight in, it must be admitted a somewhat "gamey" condition. The explanation of the whole thing is now forthcoming—£218,475 was the precise amount of fines inflicted by Courts of Summary Jurisdiction throughout the kingdom during the year 1903, as stated by Mr. Akers Douglas, in reply to a question in the House of Commons. Of this sum, £144,258 went to county borough and police funds, £42,886 to the police, £5,628 to the Exchequer, and £25,703 to other persons. It is probable, no doubt, that motorists contributed considerably to this amount, but they certainly did not contribute the whole of it, and the people who have been arguing from the huge amount, on the one hand how bad motorists must be, and on the other hand what shocking depredators Justices of the Peace are, must revise their views of the situation—and also alter the year to which the figures apply. We are sorry for them. We must admit having assisted the *canard* upon its flight, though, as above explained, we did so in the best of good faith and implicit belief in the reliability of the information.

For the General Good.

THE London County Council has, it is announced, decided to apply to the Board of Trade for permission to increase the speed of its trams, at any rate in certain cases, from the present legal limit (seldom observed, by the way) of 10 miles an hour to 16 miles an hour. Everyone who has the improvement of London traffic and the means of communication at heart, will be in favour of the proposed concession. One of the chief objections to the electric tram as at present constituted is the manner in which it delays other traffic, and that effect is likely to be diminished by extending its limits of speed. It is mainly, however, as a matter of principle that we are in favour of the suggested concession, for in point of fact (as has been proved over and over again), the tram drivers, in the South of London at any rate, pay no more attention to their legal speed-limit than a Bench of Irish magistrates do to the law, so that it is only exceptionally that much effect on the general traffic will be noted. If the Board of Trade, however, agree to allow the legal limit of tram speed in the metropolis to be raised, we think in common justice, and in accordance with the sacred principle that what is sauce for the goose should be sauce for the gander, that the Local Government Board should permit a similar extension of the speed limit in the case of motor 'buses. At present, as the result of the Board's ordinances, their speed is limited to 12 miles an hour. Notwithstanding this disability, however, they have shown themselves, to the satisfaction of the Commission of Engineers who have reported recently on London traffic, to be the fastest public conveyances on the London streets. It would be a gross injustice if, while relief is given to the electric tram, the motor 'bus should be thus unfairly and unjustifiably handicapped.

A Matter for Opposition.

WHILE we approve of the County Council's action in the above respect, we feel called upon to most wholeheartedly condemn their action in another direction. If there is one district in London which the motor 'bus has made pre-eminently its own, that is the neighbourhood served by the Edgware Road as far as Cricklewood. This line has in the past been very inefficiently served with 'buses. The coming of the motor 'bus has revolutionised traffic along the whole distance, and the motor 'buses are now beginning to deal most satisfactorily with the traffic, and proving a thorough boon to the inhabitants. Will it be believed, therefore, that the London County Council are promoting a bill to empower them to lay electric tramlines along the Edgware Road from Marble Arch to Cricklewood. It is evident that the County Council does not like the motor 'bus. Doubtless it recognises it as the most dangerous competitor of its own electric trams. Needless to say, if the County Council obtain these powers, the entire traffic will be disorganised throughout the long period while the trams are being laid (when the usual unspeakable chaos will prevail) and seriously handicapped subsequently, not by the fair competition of the trams so much as by being impeded in their movements by these inflexible encumbrances of the highroad. It cannot be urged that the tram extension is needed. In fact the whole proposition has the appearance of a deliberate attack on the motor 'bus by a municipality which, for reasons not necessarily connected with the public welfare, is wedded to the electric tram.

HIGH-TENSION MAGNETO IGNITION.—PART XIII.

BASSÉE-MICHEL SYSTEM (1906 MODEL)— AN ENTIRELY NEW DESIGN.

Introduction.

IN every respect this new model—for which Messrs. Gauthier and Co. now have the English agency—differs from that which Messrs. Bassée-Michel introduced last year. It is different both in principle and design, for not only have the manufacturers adopted a separate induction-coil—originally peculiar to the Eisemann system—but they have discarded their circular magnets in favour of the more orthodox horse-shoe type. The 1906 Bassée-Michel magneto is, therefore, an entirely new machine. It is still distinctive in appearance, and it still reflects in its construction that same ingenuity and careful attention to detail which characterised the previous model.

More important, however, is the fact that the manufacturers have evolved a new system of wiring which is quite different to everything which has hitherto come before our notice—in fact, its chief advantages were discovered more or less accidentally. Briefly stated, the

facturers to result from this system. One is that it is impossible to “burn out” the armature, no matter how fast the magneto may be driven; the other is that the same machine gives a much better spark when used in this way than it does when used on an ordinary induction-coil having but one primary winding.

The general principles on which any high tension spark is produced are already familiar to readers of our introductory chapters on this subject, and as the explanation we then gave applies in this case also, it is not necessary to deal at great length with the theory of the system. It will be remembered that we then pointed out how a spark could be produced at the instant of *making* the primary circuit instead of at the instant of *breaking* it, if the initial voltage were sufficiently high; but that it was more usual to employ the latter method on account of the increased facility with which it brings about a rapid change in the strength of the magnetic field. The Bassée-Michel system is, in a sense, a combination of both principles, for the interruption of the current in one coil brings about

FIG. 1.—The Bassée-Michel High-Tension Magneto (1906 Type).—View of the complete machine, together with the separate Induction-coil, which has two primary windings. The use of these two windings is a special feature of the Bassée-Michel system; one of them being of comparatively low resistance, the same coil can be used with accumulators when necessary.

innovation consists of employing two primary windings on the induction coil—originally one for the magneto and the other for the auxiliary battery ignition. These windings have different resistances, and one end of both is connected to the magneto, so that they are in “parallel.” The other end of the coil, having the greater resistance, is connected to “earth,” and it thus permanently closes the armature circuit. The corresponding end of the other coil (the battery coil) is connected to the contact-breaker in such a way that it is dependent upon the *closing* of the contacts for the completion of its circuit with the armature coil. So long as the contact-breaker is closed, therefore, the armature can force electricity through both primary windings, and even when the contact-breaker is open, it is still able to keep some of its current flowing through one of them.

Two advantages are especially claimed by the manu-

an increase of the current in the other, and it is this sudden change which produces the phenomena culminating in a spark at the ignition plugs. It is, as we have explained before, the suddenness of the change which determines the intensity of the spark. In this system the current in the unbroken primary coil is given an impetus when it is already in full swing, and, judging by results, this appears to be a very effective method of producing a rapid change in the magnetic field. It is possible, however, that this may not be entirely accountable for the successful working of the scheme, but there is insufficient data available at this early stage of its development for any more detailed analysis of the theory to be made at present. An outcome of this system is that it enables a set of accumulators to be employed without the necessity of providing a separate coil more suited to their voltage than is that usually employed with magnetos.

The primary winding of least resistance in the Bassée-Michel coil is specially constructed to be suitable for use with accumulators, and a special switch is provided by which they can be instantly substituted for the magneto when required. The high-resistance primary coil is in this case cut out of action, but as there is no trembler, the contact-breaker—which is mounted on the magneto—is still made use of, as is also, of course, the distributor for the high-tension current.

In construction, the machine does not differ greatly from other magnetos, but great attention has been paid to accessibility, and the apparatus is very easy to dismantle. There are, too, remarkably few screws employed for securing parts which may be required to be easily removed, and the very ingenious application of slotted washers and springs, employed on what is virtually the bayonet-socket principle, has, in certain cases, formed an admirable solution to the difficulty of providing a readily removable but efficient fastening.

Our Illustrations.

A view of the complete machine, together with the separate induction-coil, is shown in Fig. 1. Some of the more important component parts are illustrated in Fig. 2,

The Magnets.

The magnets are of the ordinary "horse-shoe" type, but they are made up of no less than ten elements—which is an unusually large number for compound magnets of this size. A flat brass bed-plate, G^1 , supports them, and affords a base by which the machine may be secured to the car. The pole-pieces are, as usual, made of cast iron, but they are somewhat longer than the magnets themselves, and they overlap at one end. This, however, is merely for constructional purposes, and is not in any way dictated by the theory of the machine.

The Armature.

There is no appreciable difference between this and other armatures in magnetos of the *low-tension* type. The core, A, is built up from numerous thin sheets of soft iron, which are insulated from one another by varnish, and the whole is mounted between two brass end-plates, B^2 , which carry the halves, B, B^1 , of the armature-spindle. Over the core is wound the coil of wire in which the electricity is generated; one end of this coil is "earthed" to the core, but the other passes through an insulated bush in one of the brass end-plates and is connected to the brass "slip-ring," C^1 , which is visible in

FIG. 2.—The Bassée-Michel High-Tension Magneto (1906 Type).—Views showing the more important parts arranged in their relative positions. The method in which the Distributor is driven from the Armature Spindle, and the position of the Collector Brush, C^1 , are prominent in this illustration.

where they are arranged in their relative positions, and views showing the more interesting details are given in Figs. 3, 4, and 5. We have also prepared three separate diagrams in order to make the electrical connections of this system thoroughly clear. The first of these, Fig. 6, corresponds in general appearance and arrangement with those which have appeared previously in connection with our descriptions of other systems, and will therefore enable this system to be readily compared with them. Then there is the diagram of wiring, Fig. 7, which gives graphically all the necessary information to enable the magneto to be connected up when installed on a car. And in addition to this, there is another diagram, Fig. 8, which is, to a certain extent, a combination of both Figs. 6 and 7, and may, perhaps, enable some of our readers to more readily grasp the system, since the way in which the coils are arranged separately in this illustration enables the various circuits to be followed more easily. It must, of course, be understood that the three coils are, actually, wound over one iron core, as they are diagrammatically shown in Fig. 6. An important detail of the apparatus is the special switch which is illustrated in Fig. 9.

Fig 3. This brass "slip-ring" is, of course, carefully insulated from the brass end-plate on which it is mounted.

Both ends of the armature-spindle are carried in the ball-bearings provided in the bearing-plates, M and M^1 , which are screwed up against the magnets. The bearing-plate, M, supporting the driving end, B, of the armature-spindle, is used solely for this particular purpose, but that at the front end of the machine also carries the contact-breaking and distributing mechanisms. The armature is driven, in the usual way, from the engine by means of a spur-wheel, or chain sprocket, fixed on to the end of the spindle, B. In practice the magneto is usually driven at the same speed as the crank-shaft.

(To be continued.)



Pure Speed Racing versus Tourist Car Tests.—This important question, which is now agitating the various leading automobile bodies throughout the world, is the question on which a serious split has taken place in the Milan A.C., leading to the resignation of the president, the Chevalier Massoni, and the members of the committee.

THE 1905 ARGYLL CARS.—PART III.

(Continued from page 1295.)

The Standard Engines.

To a certain extent, the Aster engines, which are now to be built in the Argyll works also—as recently announced in our columns—but more especially the 24-h.p. Argyll engine, now demand our attention. Its four cylinders, each of which are formed by a separate casting, have a bore of 95 mm., and the stroke is 130 mm. It is thoroughly up-to-date in design, possessing as it does most of those features which modern practice has shown to be so valuable. The nickel-steel crank-shaft, for instance, is supported by bearings between each crank, and these are arranged in such a way that the base of the crank-chamber can be taken off without disturbing the crank-shaft. The cam-shaft, moreover, can be drawn out longitudinally, it having the sleeves that form its bearings larger than the cams; the sleeves come out with

requires no stuffing-box, the end-thrust of the revolving member being ingeniously utilised for making a water-tight joint between that member and the external casing. For keeping the water cool in the honeycomb radiator, a belt-driven fan is fitted to the engine immediately behind the radiator. The normal engine speed is the same as that of the Aster engines, viz., 1,100 revs. per min., and the form of carburettor usually fitted is of the Longuemare type, with an automatic valve for admitting auxiliary air. In certain cases, however, other carburettors are employed instead.

Of the Aster engines, comparatively little need be said in this article, for they are already well known to most of our readers, and their many excellent features are very generally recognised. Certain models have separate cylinders and others have the cylinders cast in pairs.

The 10-12-h.p. Argyll Car, fitted with tonneau body; this is the only Argyll model that has a two-cylinder—instead of a four-cylinder engine.

the shaft, and the cams can therefore pass through the end of the crank-chamber. A high-tension magneto is fitted, as well as a commutator, for the battery ignition, both being gear-driven, and there is also a centrifugal governor which automatically controls the speed by acting on the throttle-valve.

All the valve-lifters have small rollers to reduce the wear of the cams, and everything has been done to render the engine silent. An interesting detail is the manner in which the gudgeon-pins are held in place in the pistons, this being done by the simple expedient of fitting a fourth piston-ring so that it passes around the ends of the gudgeon. All the gearing is enclosed in the crank-chamber, the commutator is placed in a very accessible position, and the induction-pipe renders each inlet-valve equidistant from the carburettor. The circulating-pump, which is of the centrifugal type and is gear-driven, is specially noticeable in consequence of the fact that it

As fitted to Argyll chassis, magnetos can be added if desired, but under ordinary circumstances battery ignition is alone supplied. The 26-30-h.p. engine has a bore of 105 mm. with a stroke of 140 mm., and the corresponding dimensions of the other engines are as follows: 16-20-h.p., 88 mm. by 130 mm.; 12-14-h.p., 84 mm. by 110 mm.; 10-12-h.p., 95 mm. by 140 mm. The last-mentioned is a twin-cylinder model, but all the others have four cylinders; it is seen in place—from the inlet-valve side—on a chassis, in Fig. 13.

The Clutch.

Except on the 10-12-h.p. models, the clutches used on all Argyll cars are of the Hele-Shaw type, with which our readers are already more or less familiar. It will be remembered that this clutch belongs to that variety in which a number of thin metal discs—alternately carried by the driving member and the driven member—are forced up

Fig. 13.—View of the twin-cylinder engine, fitted in place in the 10-12-h.p. Argyll Car; in this illustration the ignition-plugs, which lie above the mechanically-operated inlet-valves, are prominent.

against one another in an oil bath by the clutch-springs, and are allowed to separate when the clutch-pedal is depressed. The special merits of such clutches are that they tend to come into operation without any kind of shock, that the oil allows them to "slip" when such action is desired, and that they will continue to work for a long period of time without requiring any adjustment or other renewal than the lubricant. These and other general matters relating to their use were entered into very fully by us when describing the Bradley clutch (on March 11th and 18th last), and need not therefore be repeated now. The distinctive features of the Hele-Shaw model are, however, that the discs are corrugated instead of being quite flat, and that they are separated by small springs instead of by a more positive mechanism.

The precise form in which the clutch is employed by the Argyll Company is illustrated in Figs. 14, 15, 16, and 17, which show it fixed in place in a 4-cylinder chassis, show it dismantled sufficiently to expose the interior, show one "driving" ring and one "driven" ring separately, and give a transverse section through the entire mechanism, respectively. The clutch occupies the whole available space within the fly-wheel, and the operating-mechanism by which the discs are caused to disengage with one another is of a particularly substantial character.

Referring to Figs. 15 and 17 (especially the latter), it will be seen that the hollow fly-wheel, H, is bolted to a self-registering flange on the engine crank-shaft, and that it has a number of "driving" guide-pins, H¹, projecting inside it, parallel with the axis of the shaft. The pins, H¹, form guides for the "driving" discs, H³, which are correspondingly slotted around their periphery for this purpose. Also passing through slots in the outer edge of the discs, H³, are three equidistant pins, H², but these are fitted in such a way that they can be screwed in or out further in relationship to the fly-wheel, and

enable the three clutch-springs, H⁴, to be adjusted—as we shall now proceed to show. The pins, H², are provided with small, circular spring-casings, H⁵, having shoulders at each end, the one shoulder projecting outwards in order to engage with the three-armed spider, H⁶, and the other shoulder projecting inwards for the spring, H⁴, to thrust up against. The springs are held up against the inner shoulders by nuts on the ends of the adjustable pins, H², and they therefore tend to force the spider, H⁶, inwards—towards the discs, H³—with a pressure that can be varied by screwing the pins, H², in or out. The three-armed spider, H⁶, is, in turn, controlled by the clutch-pedal (J⁶), for it is mounted freely about the "driven" shaft, J, and has a collar for the ball thrust-bearing, H⁸, of the clutch-fork mechanism, H⁹.

The "driven" member consists of the externally-toothed casting, J¹, and of the discs, J², which are so slotted as to engage with the teeth on that casting.

The discs, J²—like those on the driving pins, H¹—are free to slide towards or away from one another, but both

Fig. 14.—The central portion of a four-cylinder Argyll Chassis, showing the multiple-disc clutch, and the "Govan" change-speed-gear, with its operating mechanism.

Fig. 15.—View of the multiple-disc clutch employed on all four-cylinder Argyll Cars; in this illustration the oil-tight cover (H⁷), and one of the clutch-springs (H⁴), have been removed, and are shown separately.

sets are compelled to revolve with their respective clutch-members. They project alternately between the discs, H³, and their V-shaped corrugations fit into those of the other discs. Normally, the discs are all prevented from pressing up tightly against one another by flat springs riveted to the discs, H³—as seen in Fig. 16—but these flat springs do not prevent the discs from being forced

together by the three helical springs, H⁴. At its front end, the clutch-shaft has a spigot supported by a ball-bearing in the fly-wheel, H, and, just inside the coupling-flange at the other end, it has another ball-bearing in the bracket, J³. The casting, J¹, rides upon a square portion of the shaft, J, and is, therefore, capable of accommodating itself to the discs. To render the bracket, J³, rigid with the frame, it is braced to the gear-box by the stay, J⁵.

Other points of interest about this clutch are that a brake-flange, J⁴, is fitted to the shaft, J, and that provision is made for filling the fly-wheel with fresh lubricant and draining off what was left. The mechanism, H⁹—which is connected with the clutch-pedal, J⁶—has a corresponding brake-member that comes in contact with the revolving flange, J⁴, if the pedal is fully depressed, and thus the “driven” member of the clutch can be slowed

up quickly, when necessary, for changing gear. For introducing the special lubricant into the oil-tight casing, formed by the fly-wheel, H, and the cover, H⁷ (which has inspection plugs for removing the clutch-springs), there are four screw-caps in the periphery of the wheel; they enable it to be filled exactly to the correct level—just upon half full.

Fig. 16.—A “driving” disc (H³) and “driven” disc (J²), several of which are employed in the special clutch used on all four-cylinder Argyll Cars.

Fig. 17.—Sectional drawing, showing the construction of the multiple-disc clutch, adopted by the Argyll Company.

MR. GEORGE BURTON, a Preston motorist, enjoyed the unique experience, on Sunday last, of careering at 40 miles an hour through the streets of Burnley, aided and abetted and actively assisted by the police, who kept the public as far as possible off the roads to facilitate his progress. A fire engine had broken down on the way to a cotton factory which was on fire, and Mr. Burton was carrying, as fast as he could, a cargo of firemen with some equipment to the scene of the conflagration.

A few words should also be said about the other form of clutch—that fitted to the 10-12-h.p. car—for even though it is of a more usual type, it differs from others of the internal leather-faced cone variety. The inner member is normally pressed *outwards* by the clutch-spring against the corresponding conical face of an outer ring, but the special feature to which we are directing attention is that this outer ring can be adjusted—relatively to the fly-wheel—by three nuts. A further adjustment for taking up any wear of the leather is thus rendered available.

(To be concluded.)

WE are glad to be able to chronicle the case of one Rural District Council, at any rate—that of Tendring—into whose minds somewhat more progressive notions seem to be penetrating. The Council is considering the idea that they ought to participate in the income derived from motor traffic, and, at the same time, think that this income should be distributed over the whole of the county, and *mainly used in the improvement and maintenance of roads.*

THE "M AND B" STEERING-GEAR.

OF the really important parts of a motor car, the steering-gear must undoubtedly rank among those of first consideration on account of the danger to life which may be caused by its failure. Simplicity and strength have, on the whole, been the leading features of the design of most gears, but in comparatively few cases has any form of adjustment been provided other than that necessary to take up the backlash of the steering-column itself. To compensate for the backlash in the intermeshing teeth of the gear is generally no very easy matter on account of the uneven wear which takes place between them. In gears of the worm and sector type, for instance, more wear will take place in the centre of the sector than at the ends because the car will more often be travelling straight ahead than turning corners. In taking up the

utilised for steering the car, and as it is possible in the arrangement adopted to always keep the same faces of the screw-threads in contact, no matter which way the bolt or nut may be moving, all backlash can be entirely neutralised, however much clearance there may be in the threads. Owing to the fact that, when in the straight-ahead position, the screw-threads are engaged almost throughout their length, the wear takes place uniformly and thus removes the danger to jamb which results from an adjustment compensating only for purely local wear. Referring to the illustration, this shows, on the left, a view of the gear complete, while, to the right, are several views of the gear in various stages of dismantlement, which indicate both its construction and the manner in which it operates.

The "M and B" Steering Gear.—View showing the gear complete (on the left), and its component parts separately, and also partly assembled.

backlash at the centre the gear would therefore be liable to jamb when the front wheels are given the full lock, and it is for this reason, it will be remembered, that the sector on the Wilson Pilcher car is originally made with some little backlash at each end so that it may actually improve generally as the wear is gradually taken up in the centre.

A form of steering-gear which is particularly interesting is that which is made by the well-known French firm, Malicet and Blin. This gear, which is illustrated above, from the model lent to us by Messrs. Gauthier and Co., has been designed more particularly for heavy cars which require a very substantial steering mechanism. The principal feature of interest, however, lies in the fact that practically no uneven wear can take place, and that one simple adjustment simultaneously takes up all backlash, whether the wear has taken place in the steering-column, or in the intermeshing threads of the gear.

The Malicet and Blin steering-gear is in principle a modification of the screw and nut gear used on some cars. The lower end of the steering column is rigidly connected to a sleeve which has a left-handed screw-thread on the inside and a right-handed screw-thread on the outside. A bolt and a nut, respectively, engage with these threads, so that, when the steering-wheel is turned, one of them moves downwards while the other moves upwards. The motion of the bolt and nut is

Although, perhaps, the variety of views shown in the illustration may give the idea of complication, this gear is nevertheless very simple, both in action and construction, while the general design is such that it may be quickly taken to pieces and re-assembled. The lower end of the steering column is connected to the phosphor bronze rod, A, which has, solid with it, an enlarged hollow end, A¹, forming a long sleeve. Both on the inside and the outside of this sleeve is a double screw-thread of square section, that on the inside being left-handed, and that on the outside, A², right-handed. Engaging with the inner thread is a steel bolt, B, and with the outer thread a steel nut, C; both these members are formed with a kind of foot indicated by the letters, B¹ and C¹, respectively. When in position these feet rest on two crank-pins, D¹ and D², which are arranged, as shown in the illustration, on the crank-shaft, D, and are fitted with loose sleeves to reduce friction. The crank-shaft, D, which is fitted with brasses, D³, is carried by bearings in the dust-proof casing, E and E¹.

The upper part, E², of the casing is cylindrical and receives the screw gear, A, B, and C, which is a sliding fit in it, the nut, C, being machined on the outside for this purpose. In order to ensure that the feet, B¹ and C¹, shall rest firmly on their respective crank-pins, D¹ and D², the casting, E², has a cap, E³, which screws down upon a ball-thrust bearing, A², resting

against a collar on the member, A. The whole gear may thus be quickly adjusted, and afterwards locked by the nut, E⁴. When the steering wheel is turned to the right, the left and right hand threads on the member, A¹, cause the bolt, B, and nut, C, to move downwards and upwards respectively, so that their feet, B¹ and C¹, cause the crank-shaft, D, to rock about its axis. One end of the crank-shaft carries the lever arm, which is connected to the steering knuckles in the usual way.

It will be noticed that, after the cap, C³, has been adjusted, the lower faces of the threads on the member, A², and the upper faces of the threads on the members, B and C, are forced into contact and, as it is impossible for either of the members, B or C, to move in one direction without a corresponding motion of the other in the opposite direction, these faces must therefore

always remain in contact whichever way the steering-wheel is turned. Any motion of the steering-wheel to the right acts through the pressure of the foot, B¹, and conversely all motion of the steering-wheel in the other direction acts through the pressure of the foot, C¹.

Table of Reference Letters for the Malicet and Blin Steering Gear.

A	Shaft inside steering pillar.	D ¹	Crank for B ¹ .
A ¹	Enlarged part of A.	D ²	Crank for C ¹ .
A ²	Ball thrust bearing.	D ³	Bearing brasses for D.
A ³	Screw on outside of A ¹ .		Dust-proof casing.
B	Inner threaded member.		Base for same.
B ¹	Foot on B.		Upper portion of E.
C	Outer threaded member.		Adjustable screw cap.
C ¹	Foot on C.		Lock-nut for same.
D	Crank-shaft.		



THE VIEO WHEEL.

Two views showing the cars on which Mr. Stuart Ogilvie has tested the "Vieo" wheel. That on the left is a 24-h.p. Napier. The other car is a 6½-h.p. Gladiator.

ALTHOUGH only just introduced to the public, this interesting device—the invention of Mr. Stuart Ogilvie—has already had an extensive trial on touring cars, two of which we are able to illustrate this week. One of these, on the left, is a 24-h.p. Napier, weighing, with its specially-designed body, about 2½ tons. It was on this car that most of the experimental runs, extending over more than 4,000 miles, were made, although the wheels were also successfully tried on the small 6½-h.p. Gladiator seen to the right of our illustration.

The interior arrangement of the present wheel is well shown in our other photograph, and the parts, which we were only able to illustrate by line drawings in our issue of July 1st, are rendered more clearly visible. The rubber rollers, which are interposed between the inner and outer members, form the resilient portion of the wheel, but the drive is transmitted through the four carriers and stops which are fixed to the two members.

The standard design, now in preparation, will embody some slight modifications in the design, and we therefore refrain from giving, at the present time, the more fully illustrated description which will form the subject of a future article in these columns.

View showing the interior of the "Vieo" resilient wheel.

THE GILLESPIE AEROPLANE.

WE have referred recently to several airships and aeroplanes which have executed actual flight of some sort. As an example of the direction which the minds of designers are taking, we now reproduce some photographs of a machine which has recently

aluminium and are 4 ft. in diameter, and it has been calculated that the machine should have a lifting power, at the speed it is capable of developing, considerably in excess of the dead weight to be carried. The motor itself has horizontal cylinders arranged in groups, the

GILLESPIE AEROPLANE.—The upper illustration shows the Gillespie Aeroplane from below, and as it should appear in actual flight, showing clearly the arrangement of the propellers and the structure and method of support of the forward lifting rudders. Below is another view showing the Aeroplane on the ground.

been designed in the United States — the Gillespie aeroplane. This machine, as will be observed, is of the perfectly flat type with 7 equi-distant propellers, driven by a petrol motor situated in a cage beneath them, in which it is intended that the aeronaut should recline in a horizontal position. It is also provided with bicycle wheels to enable it to get up sufficient speed on the ground to rise in the air, and presumably for use when it again descends. The propellers are made of

bore and stroke of each of the cylinders being 3 ins. by $3\frac{1}{4}$ ins. The cylinders are air-cooled, being wrapped with light wire spirals to act as a radiator, something like those of the Clarkson cooler, and high-tension ignition with a special commutator and dry cells is employed. The total weight of the motor is said to be 237 lbs., or a little over 10 lbs. to the h.p., as it develops about 20 h.p. The movements of the aeroplane are controlled by the moveable planes at either end. The framework

GILLESPIE AEROPLANE.—In the upper illustration is seen the Aeroplane from the near side and from below. The arrangement of the propellers and front and rear rudders may be clearly observed. The lower illustration shows the machine with horizontal motor and aluminium controlling wheel directly in front of the operator.

of the whole is constructed of aluminium tubing reinforced by piano wire, and the lifting surfaces themselves are formed of light duck stretched over the tubing. Its total lifting surface is some 200 square feet. We await

with interest further information as to whether this aeroplane is likely to take its place among the ranks of those machines which have actually succeeded in flying.



"Foot-pounds" and "Horse-power."—Writing in reference to our recent articles on the Tourist Trophy Race Question, a correspondent has asked us to explain the difference between the "pull in foot-pounds" and the "horse-power" of an engine. Realising that others of our readers may also experience a similar difficulty in grasping this point, we give the following brief explanation, which really resolves itself into pointing out the difference that there is between "work" and "power," since "foot-pounds" expresses the *amount* of work that is done, and "horse-power" expresses the *rate* at which that work is being performed. Assuming, for instance,

that an engine were to be employed for lifting a weight of say 33,000 lbs. up vertically to a height of 100 ft., then the "work" to be done might be expressed as 3,300,000 *foot-lbs.*, whether the engine were to take one minute or one hundred minutes in performing its task. If, however, one minute only were spent, then the power would be expended at the rate of 3,300,000 foot-pounds *per minute*, and the engine would therefore be giving 100 h.p., whereas if it took a hundred minutes, the power would be exerted at the rate of 33,000 foot-pounds per minute, and the engine would be giving 1 h.p.

THE LEYLAND-CROSSLEY 'BUS.

Our illustration, Fig. 1, shows one of these omnibuses, which has been in regular service between the Law Courts and Cricklewood, and Figs. 2 and 3 show the 'bus chassis from above and the side respectively. The propeller-shaft driving the live-rear-axle is enclosed in a stationary casing, which is mounted in a spherical bearing at its forward end, the bracket carrying the bearing being attached to the front of the chassis. The propeller-shaft is connected to the live-rear-axle by a universal joint, the propeller-shaft being supported by a bracket at its rear end, which is attached to the live-rear-axle.

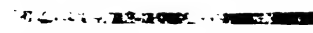


Fig. 2.—The Leyland-Crossley 'Bus. View from above of the chassis, showing the live-axle with the stationary tube, enclosing the propeller-shaft, which anchors the axle to the frame.

Fig. 3.—The Leyland-Crossley 'Bus. View of the chassis, from the side, showing the suspension of the back-axle on the semi-elliptic springs which are shackled at the rear to a transverse spring, and rest in slides in front.

RACES, RECORDS, AND TRIALS.

At the same time we were disappointed, and we, therefore, took the first opportunity to discuss the matter with Mr. Earp—who drove the car this year—immediately upon his return. Mr. Earp is absolutely convinced that his car was never running better—and considering his experiences with this vehicle, and his recent victories at Dourdan and Chateau Thierry—he at least should be an excellent judge of its condition. Last year the actual speed of the car was over 76 m.p.h., but this year a new back axle was fitted in order to give a more suitable ratio, and the car was, at the time of the race, geared to 84 m.p.h.

Prior to the event, Mr. Earp made about thirty runs up the hill, and he estimates his *average* time for the flying kilom. on these trials as being $28\frac{1}{2}$ secs. = 79.3 m.p.h. If all went well he hoped to even better this time in the actual race. And in the event everything, so far as the car was concerned, did go well, even the elements were propitious, for the rain had put the roads into a slightly slippery condition, which made it easier to start this powerful two-speed car quickly.

In common with all sportsmen, we should naturally have been pleased had Mr. Earp followed up his previous successes at Dourdan and Chateau Thierry by winning the Gaillon Hill Climb, but the loss of personal victory is a smaller misfortune than the lost opportunity of establishing a new record on this hill, which has for so long been the scene of a classic contest.

No doubt this fact is equally unsatisfactory to the French, and as Mr. Earp is so satisfied that he was travelling, on that occasion, faster than he had ever travelled before, we cannot help thinking that there may, by some possibility, have been an error in the timing. We should, therefore, like to see—in order to put the question of the capabilities of the car beyond question—another meeting arranged under the auspices of the A.C.F., between Baron de Caters, Mr. Earp, and Messrs. Barras and Rigolly, and with, say, M. Tampier or some one of similar experience, as time-keeper. Messrs. Barras and Rigolly are still joint holders of the record (29 secs.) which they established last year and which by the timing this year was in nowise approached, and this very fact of a tie must in itself appeal to all as another important reason why an early opportunity should be forthcoming of allowing a new official record to be attempted on this famous hill.

INDIAN MOTOR TRIALS.—The Aga Khan Challenge Cup awarded to a 6-h.p. Wolseley Car in the recent Poona-Satara Reliability Trials.

Gaillon Hill Climb Records.—This is one of the oldest established of the late-season "Foreign Events," and for seven years in succession has been organised and stage-managed by our contemporary, *L'Auto*. It was last year's meeting, however, that aroused the first deep interest in the race on this side of the Channel, for it was on this occasion that Mr. Macdonald took the now famous, but then *débutante*, 6-cylinder Napier to compete against the foreign "crack" cars. Although in no way properly tuned to its work, Mr. Macdonald drove his car to such good effect that his time only differed by two-fifths of a second from that of the fastest.

The trial was exciting, and unquestionably astonishing to those who witnessed it, but the result was anything but conclusive—especially to an Englishman. Mr. Edge at once made up his mind, therefore, that his car should be given every possible opportunity for making a better performance in the following year, for he was certain, in his own mind, that it was capable of much better things. That "next opportunity" duly arrived on Sunday, the 15th inst., and the result of the race was that the time recorded was actually $3\frac{3}{5}$ secs. slower than the year before—a result as astonishing to us on this side of the Channel as was the previous performance to our rivals. We were, therefore, quite able to give credit to the report which reached us that the Napier was not in its best stride.

Nice Speed Races.—Arrangements have been concluded, it is reported, to resume the speed tests over the mile and kilometre on the Promenade des Anglais, at Nice, during the coming season of 1906.

Voiturette Competition.—The rules for this competition, under the auspices of *L'Auto*, now announced to take place from November 21st to 27th, starting from Paris, have now been issued.

The chief points are that vehicles to classify for entry must have one cylinder, with a maximum capacity of one litre; the weight of the chassis, including the bonnet, tanks, &c., must be between 350 and 500 kilogs. The body must be two-seated, at least, and weigh not less than 50 kilos., must have four wheels, and carry two passengers

of 70 kilos. each. Uncovered vehicles must carry 40 kilos. of ballast; hooded or covered vehicles must carry 20 kilos. ballast, permanently covered-in cars being exempt from extra ballast.

The trial will consist of four tests, viz.:

1. An endurance run of six stages, each of a distance of about 200 kiloms.
2. A speed test over a flying kilometre on the flat.
3. A speed kilometre on the hill with 10 metres flying start.
4. A run over 500 metres with a standing start and finishing at rest.

The endurance test of six stages is fixed for November 21-26, and the other three tests will take place on the 27th. The classing will be arrived at as follows:

- (a) *Regularity.*—Times will be officially taken at various points and stages of each day's running. The speed for each daily stage must not be less than 25 k.p.h. Any car making less average speed than this will, irrespective of the number of points that it may otherwise secure, be classed after all the competitors who have maintained an average of 25 kiloms. throughout the six stages. Competitors not maintaining the speed of 25 k.p.h. will be penalised for each stage by 5 points per hectometre per hour difference in speed.
- (b) *Speed Test on the Flat.*—A car making the best time over the flying kilometre will not be penalised. All other cars will be penalised by 2 points per second or part of a second between their time and that of the quickest car.
- (c) *Speed on the Hill.*—The same penalties hold good for the kilometre on the hill with a 10 metre start as over the kilometre on the flat.
- (d) *Starting and brake efficiency.*—500 metres test. The car making best time will not be penalised. All others will be penalised one point per $\frac{1}{4}$ second between their time and the time of the quickest.

The general classing will be arrived at by the addition of the 4 points, the lowest number denoting the winner, subject, however, to such winners having maintained the average speed of 25 kiloms. for the six stages of the endurance run.

Cars will be garaged free each night, and the garage will be strictly closed against all repairs, excepting under observance. Drivers may be changed daily under certain conditions.

German Heavy Vehicle Trials.—The heavy vehicle reliability trials of the German Automobile Club, which consisted of a number of runs in the neighbourhood of Berlin, commenced on the 9th instant at Reinickendorf, and finished up at Spandau on Saturday, the 14th instant. There were 13 classes, including everything, from 'buses designed to carry 23 passengers, and heavy luries for brewery work, to light delivery vans, entries being (a) by constructors, (b) by private owners. There were 16 entries altogether, and of the 16 entrants, 14 were at the start, the only defaulters being the steam lurry of Messrs. Garrett, Smith and Co., of Magdeburg-Buckau, and the petrol lurry of H. Rosenthal, of Berlin. Of the 14 competitors who started at Reinickendorf, 13 successfully accomplished the trial, and arrived safely at Spandau within the maximum time allowed, the

only failure to accomplish the course occurring in the case of the Cannstatt Daimler brewery lurry, which had been in use by the Böhmisches Brewery of Berlin for seven years, the springs of which gave out.

On each day of the Trials a "longer distance" of between 100 to 125 kiloms. was covered by the omnibuses, and a "shorter distance" varying from about 65 to 75 kiloms., by the luries. The awards are appended in the short table below.

The "Targa Florio."—The length of the circuit for this contest in Sicily, of which we gave a few leading particulars last week, will be 160 kiloms., which will be covered three times, making a total of 480 kiloms. In all probability the race will take place in May next.

THE Automobile Association's cyclist scouts will henceforth be patrolling the heavily-trapped part of the Portsmouth Road from Esher to the 19th milestone on every day in the week. This, we learn from the secretary, is the first step towards the *daily* protection against the unsportsmanlike conduct of the authorities, which it is the aim of the Association to "reform."

French Events in 1906.—The Committees sitting, in connection with the A.C. de France, to determine the main principles which shall govern the leading automobile events conducted by the A.C. de France next year, are gradually evolving innovations which are likely to prove of considerable interest both to manufacturers and the buying public. For the big touring events the suggestions are that classification shall mainly be by the power of the motor. That in each class the weight of the chassis and of the carriage portion and weight of passengers shall be specified separately, and also that uniform types of bodies shall be compulsory, the following being suggested: Cars with a speed of 30 kilometres per hour, "spider" body; 35 kilometres, double phaeton body; 40 kilometres, touring limousine type; the weight of each passenger to be 70 kilogs., with an allowance of 30 kilogs. for baggage. The replacement of tyres is to be a matter for very careful observation and record. A further proposition is that each vehicle shall carry an automatic recording instrument, which will permanently record the duration of stoppages of each vehicle, speeds, &c.

Automatic Starters.—M. Henry Deutsch de la Meurthe has offered a sum of 10,000 francs to be awarded by the Académie des Sports for the best automatic starting devices for the motors of automobiles. This money will be divided—the first competition, at which 5,000 francs will be awarded in prizes, is proposed

Award.	Official No.	Manufacturer and Vehicle.	Seats.	In use since	Useful Load.	Weight.		Engine.		
						Unloaded.	Total.	H.P.	Cyls.	Fuel.
G.M. & D.	1	H. Büssing (omnibus) ...	27	2/7/05	kilogs. 3500	kilogs. 4160	—	25	4	Petrol.
G.M. & D.	2	Daimler (omnibus) ...	32	New	—	4700	7700	18	4	Petrol or alcohol.
G.M.	3	Süddeutsche, A.F. (omnibus)	13	10/6/05	—	2300	—	24	4	Petrol.
G.M.	5	Daimler (milk van)...	—	New	1000 litres	1940	—	10	2	Petrol.
G.M.	8	N.A.G. (milk van) ...	—	—	kilogs. 1500	1500	—	8-9	2	Petrol or alcohol.
D.	9	N.A.G. (lurry) ...	—	—	3500	3000	—	10-12	2	Petrol.
D.	10	Dürkopp (lurry) ...	—	12/03	3000	3180	5000	16	4	Petrol.

NOTE.—G.M. = Gold Medal. D = Diploma.

for December, 1905, and the next during the same month of 1906, both to take place while the Paris Automobile Salon is open. The rules of the competition have, by request, been drawn up by the A.C. de France.

The devices must be submitted in working order on a car having a 1, 2 or 4 cylinder engine, but if of the 4-cylinder type, the engine must be of at least 20-h.p. It must be capable of being operated from the driver's seat, and must work equally well with the engine cold or warm. The jury in making their awards will take into consideration, among other points, those of weight, size, simplicity, price, cost of upkeep, ease of action and facility for fitting to existing cars. Drawings must also be submitted, but will not be judged.

THE preliminaries for a lengthy tour of France in 1906 for motor bicycles, tricar, and voiturettes, are being arranged by *Les Sports*.

Vanderbilt Cup.—Owing to the fact that the A.C. de France, prior to the running of the Vanderbilt Cup, had formally notified the organisers of the Vanderbilt Race that whatever the issue of the race might be they would not take part in it for 1906 under the rules now pertaining, the French Club will not accept the custody of the Vanderbilt Cup with the condition that it should be

raced for in France next season. Baron de Türckheim, however, it is understood, has intimated that the French Club are prepared to offer suggestions to the Cup organisers regarding the rules in the future governing the race, under which the contest could be run in France.

Hallé Spring Wheel Trial.—The official report of the 4,000 mile trial which Messrs. C. S. Rolls and Co. have been conducting, under the auspices of the club, with a car fitted with a set of Hallé spring wheels—for which they are the agents—has now been published. The trial commenced on August 15th and extended to September 18th, a total distance of 4,001½ miles having been accomplished. Lubrication seems to have been the principal matter requiring attention, and, according to the report, oil was injected into the wheels on an average twice daily. After running 1,501 miles, the off back wheel was removed and sent to the works to have new spokes fitted. After running another 1,362½ miles, the same wheel gave trouble, and was sent to works to have a new rim, tyre, and spokes fitted to it. The near side back wheels also required new rim, tyres, and spokes after running 3,179 miles, but the front wheels came through the trial with only repairs to some split spokes *en route*.



MOTOR CYCLING.

PASSENGER CYCLE TRIAL.—Appreciation of a humorous incident. Mr. R. Todd is in the centre of our picture, just behind him is Mr. H. G. Reynolds (Judge and Starter) and Mr. MacKenzie is the Observer on the 6-h.p. Singer Car.

Quarterly Motor Cycle Trials.—The proposal to hold Quarterly 100 Miles Non-Stop runs for motor cycles, under the auspices of the Auto Cycle Club, to which we drew attention last week, appears well on the way to a successful issue. It is proposed that the trials shall be open to private owners, manufacturers or agents, and arrangements are to be made that all machines would be under strict observation the whole time. Certificates, in similar manner to that pertaining to the 100 miles car runs, would be issued stating number and causes of stoppages, the amount of fuel consumption, &c. Mr. F. Straight, the secretary of the Auto Cycle Club, reports that, so far, the majority of answers which he has

received in reply to his letter propounding the scheme, have been in favour of instituting these trials.

Passenger Motor Cycle Trial.—Sixteen motor cycles, each carrying a passenger in front, started last Saturday on the 125 miles reliability run organised by the Auto Cycle Club. Both start and finish took place from the Chequers Hotel, Uxbridge, and the route lay through Wheatley, Banbury, Bicester, Aylesbury, and Chesham. Times were taken up Dashwood Hill—from the 33rd milestone to the Danger Board—and a "surprise" brake test was

PASSENGER CYCLE TRIAL.—The start at Uxbridge.

made on the return journey. With the exception of an hour for lunch, no stops were allowed, and the competitors had to run in accordance with a schedule giving maximum and minimum times—estimated on the basis of 15 and 20 m.p.h. respectively. The following are the results:—

Official No.	Entrant and Machine.	Stops.	Petrol.	Hill-Climb.
			gls. pts.	m. s.
1	A. Carpmael, 6-h.p. Riley ...	3	3 0	5 14½
2	Quadrant Cycle Co., 6-h.p. Quadrant	N.S.	3 0	2 53½
4	W. B. Barnes, 6-h.p. Invicta ...	1	3 4	2 56
5	Dr. E. B. Brewerton, 10-h.p. Lagonda	—	3 2	3 22½
6	A. C. Earp, 6-h.p. Singer ...	1	3 6	2 27½
7	E. Clark, 6-h.p. Leader ...	N.S.	4 2	4 9½
8	J. S. Harwood, 10-h.p. Lagonda ...	1	4 0	2 20½
9	Phoenix Motors, Ltd., 4½-h.p. Phoenix	N.S.	1 6	3 22½
10	Quadrant Cycle Co., 6-h.p. Quadrant	N.S.	2 5	3 4½
11	Morton Stuart, 10-h.p. Lagonda ...	—	—	—
12	Riley Cycle Co., 9-h.p. Riley ...	N.S.	3 6	1 51½
13	Riley Cycle Co., 6-h.p. Riley ...	3	3 0	2 53½
14	Fell Bros., 6-h.p. Waltham Cross ...	2	3 2	6 38½
15	Singer Co., 6-h.p. Singer ...	1	2 6	2 45½
16	R. Ellis, 4-h.p. New Ellis ...	—	—	—
17	W. Batchelor, 3½-h.p. Wallace ...	1	3 0	2 55½

NOTE.—No. 10 stopped the engine once momentarily. No. 16 did not finish. Nos. 5 and 11 had several stops. N.S. = non-top.

THOMAS, on a ½-litre Alcyon machine, on Sunday last, at the Paris Parc de Princes track, attempted to lower Cissac's world's record time on a Peugeot machine of 1h. 6m. 46½s. for 100 kiloms. for this class of machine. This he failed to do, but lowered his own previous time, under which he holds the Hydra Cup, from 1h. 10m. 1½s. to 1h. 9m. 2½s. for the 100 kiloms.

Had the Positions been Reversed.—A case in which the amazing idiosyncracies of the horse threatened serious danger to one of the most popular of our princesses occurred not so very long ago in the Bayswater Road, where Princess Henry of Battenberg was driving in an electric landaulette to the Queen's Hall. Without rhyme or reason, a four-wheeled cab without a driver dashed out from Palace Yard and came into collision with the Princess's landaulette which it considerably damaged, though fortunately the Princess escaped injury. The case came into the Westminster County Court and resulted in an amazing decision, it being stated that the cabman was not bound to hold the reins of his cab while putting up luggage, a view with which, we must say to our astonishment, the Judge agreed. In future, therefore, anybody who sees a cabman putting up luggage, or, in general, a horse without a driver, had better give it a wide berth, as, if the horse dashes off and into him, as horses frequently do, and a bad smash results, there is at least one County Court Judge who will think it is all quite right and proper.

One of the 6-h.p. Singer machines.

Mr. H. G. Priest on the 6-h.p. Quadrant Carrette.

PASSENGER CYCLE TRIAL.

REVIEWS OF BOOKS.

"The Little Guides." Dorset.

By FRANK R. HEATH.

(London: Methuen and Co. Price 2s. 6d. net.)

THIS is one of the best of the Little Guides Series that we have seen, and it is none the worse for the fact that photography has replaced the etching employed in its predecessors as a means of illustration. Dorset is a particularly interesting county, both from the archæological and geological points of view, and both these aspects of the district are treated with more than usual fulness and competence. Dorset is, of course, pre-eminently the Hardy country, and it is a testimonial to Mr. Hardy's genius that no guide book now attempts to describe his part of the country without paying particular attention to the places which figure in his novels. This is very carefully and skilfully done in the present work, and it forms in consequence quite a guide to Hardy geography—a feature which is facilitated by the appendix giving the names of places and their equivalent "Wessex" names in Mr. Hardy's books.

"The Locomotion Problem."

(By Charles Bright, F.R.S.E. London: P. S. King and Son. Price 1s. net.)

SOME two or three years ago Mr. Charles Bright delivered some lectures on this subject, partly at the Uxbridge Literary Institute and partly at Toynbee Hall. He has now re-issued them in volume form at the moderate price of 1s., and though, in some respects, of course, the subject matter is a little out of date, there is an admixture of humour and solid sense in the treatment he accords to the subject with which he deals, that renders the little work decidedly attractive reading. The three lectures comprised deal with (1) The Advent of Motors, (2) Roads, and (3) Traffic. Under the first of these headings—The Advent of Motors—the author provides a sort of running commentary on the existing acts, and in some places he makes very trenchant observations, as, for instance, where he observes, "Nobody resents the behaviour of a motor 'road-hog' more than rational motorists, who strongly object to seeing discredit brought on his fraternity by the ill-behaviour of certain individuals. The difference between barely keeping within the law, and behaving as a gentleman, does not appear to be sufficiently appreciated in some quarters, and motor car owners would do well to impress upon their drivers that it shows great lack of consideration for the comfort—if not the safety—of their comrades on the road to leave but a hair's breadth space when driving past them." And in all this part of the book, it must be admitted he most impartially points out both the disadvantages of the existing Act, and the strong objection, from every point of view, to infringing certain of its provisions. On the subject of road improvement and road management of the future, Mr. Bright is practically at one with the Roads Improvement Association and ourselves. The future of traffic is in his mind bound up with the discovery of some suitable substance (necessarily not too dear for making roads of), and in the arrangement of some central authority, as suggested by Mr. H. G. Wells and Mr. Rees Jeffreys, for controlling them.

To the enforcement of the regulations at regards town traffic, and to the general improvement in speed and comparative absence of blocking which will result from the adoption of self-propelled vehicles, Mr. Bright looks for considerable amelioration of the traffic of the future, though he is doubtful as to whether these things alone will cope with the rapid growth of population. We must certainly differ from him on the point that, in the future, all railways are destined to be electrically propelled. We think it is at any rate at least as likely, and probably more so, that the internal combustion engine will find an increasing field on them. Perhaps, after all, much of the traffic problem may be summed up in the humorous sentence with which the work opens: "There is an American phrase, 'Hustle,' which is placarded about the towns in the United States to get people along—whereas we spell it 'drive slowly.'" Rapid motion well regulated is, after all, the desideratum, and it is really less dangerous than slow locomotion unintelligently managed.

Cheshire.

By W. M. GALLICHAH. Illustrated by E. HARTLEY.

(The Little Guides Series. Methuen and Co. 2s. 6d.)

EXCEPTING for the illustrations to which the grand old Cheshire houses lend themselves with such excellent effect, this volume produces a less satisfactory impression than most of the other "Little Guides." This is perhaps partly due to the arrangement of places in alphabetical order being specially unsuited to Cheshire, a county in which places most particularly cannot be lifted out of their environment and described without reference to their surroundings. It is also more due to the practical failure of such attempt as is made to give a general impression of the varied scenic beauties of the county, in which respect the present volume is in almost painful contrast to some others of the series—notably those dealing with Yorkshire. Why, too, geology should be wholly omitted in the case of a district the structure of which is so scenically and industrially interesting, is something of a mystery.

PUBLICATIONS RECEIVED.

Motor Vehicles for Business Purposes. By A. J. Wallis-Taylor. London: Crosby, Lockwood and Son. Price, 9s. net.



Owner or Bailee?—A rather strange case came before Mr. Garrett at the South-Western Police Court recently, in which Mr. E. A. Robinson was summoned for not having properly registered a motor car. The car in question was lent to him by Mr. Marsh, who had registered the vehicle when residing in Jermyn Street. Mr. Marsh is at present in the United States, and the police apparently tried to make out that Mr. Robinson ought to have had the car re-registered in his name. Strangely, even Mr. Garrett seemed to have some doubt on the question, as he said; "The question is, what is the meaning of the word owner?" There can, we think, be no doubt on this point. Mr. Appleton, who represented Mr. Robinson, declared that his client was simply the bailee of the car for Mr. Marsh, and not only was there no obligation upon him to re-register the car in his own name, but it would have been an incipiently fraudulent act had he done so. Mr. Garrett concurred in this view, and dismissed the case.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

PETROL, STEAM, AND THE CLUB.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I wrote to you about a fortnight ago asking certain questions. You very kindly published my letter, but I have had no answers of any kind to my questions. Are your correspondents inclined to answer the questions if put in a different way? I mean I have a friend who manufactures cars not driven by petrol. He tells me (I do not for one moment say that he is right):—(1) That the Tourist Trophy Race was a delusion and a fraud, got up by petrol car manufacturers entirely for their own advertisement; (2) that the A.C.G.B.I., instead of being representative of the motorists as a body, is merely a ring of petrol car manufacturers; (3) that the A.C.G.B.I. is greatly to blame for the persecutions and hatred of motorists in various parts of this country, as if it had from the first adopted a wider basis and been more united, it would now stand in such a powerful position that the motorist would everywhere be respected. He instances the Touring Club de France; (4) that all competitions got up by this body are unfair, and preferential to petrol cars alone. He instances several cases of the unfair treatment of steam cars, e.g. Blackpool; (5) that that is the real reason why unions and associations of motorists spring up hostile to or unconnected with the A.C.G.B.I.

Now, I would like to know, Is there any truth in these accusations? I should like to get an answer of some kind. You will doubtless recall the old proverb that "Silence gives consent."

Yours faithfully,

E. W. SHEPPEE.

Holly Spring, Blacknell,

Oct. 15th.

[Mr. Sheppee's previous letter appeared under the heading of "Tourist Trophy Race," in our Correspondence column of September 30th, and was signed "Inquiring Ignorance."—ED.]

THE DANGER OF FILLING WITH PETROL WITH THE DASH LAMPS ON.—A SENSIBLE WARNING.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I happened to be staying at the Swan Hotel, Alresford, a few days ago, when, sitting at dinner one evening in the coffee room of that fine old hotel, I heard a car draw up at the door, the owner and driver of the car rushing up the yard shouting "Petrol!" "Petrol!" "Petrol!" Hearing all this unusual amount of fuss, I left my dinner and went to see what car it was, expecting, of course, to see a 100-h.p. car at least, instead of which, to my surprise and disgust, I found about a 4½-h.p. tonneau car of some unrecognised make.

The owner, rushing about, first ordering soup, &c., to be taken out to the lady in the car as they *hadn't time* to stay for dinner, and they were in a *great hurry*. He then left for the post office to send a wire off (I expect to say that they had arrived safely from Winchester—9 miles), also leaving instructions to the chauffeur to fill up with water and petrol, and to feel the bearings, all of which I watched with a keen interest, until he came to the petrol, which made my blood boil, filling up the petrol tank, which was on the dashboard, with the dash lamps alight, a distance of about six inches from the filling hole!

I remarked to him, "Don't you think that is an extremely dangerous practice?" He replied, "Oh, no, I always fill up like this."

The lady in the tonneau hearing this thought, perhaps, I was right, so ordered him to remove the lamps, which he did. I told him that I was pleased that he had removed them, because had he not done so I should, as I had seen too many cars burnt up in the same way. I told him it was not his 1-h.p. car that I was considering alone, but the possible life of others and the Swan Hotel where I was staying.

He looked me up and down several times, wondering to himself who I was, but after carefully thinking the matter over went on filling up the petrol tank, perhaps exercising more care than he had ever done in his life before.

Chiswick, W.

J. RUSSELL SHARP.

THE ASTER ARGYLL AGREEMENT.

To the Editor of THE AUTOMOTOR JOURNAL.

Sir,—We notice in certain motor journals an extraordinary paragraph to the effect that the Société Aster of France has concluded an agreement with the Argyll Company whereby, among other

things, the Société Aster places an order for a number of motors to be manufactured by the Argyll Company at Glasgow.

It is perfectly correct that an important agreement has been made between the two Companies, and that the Argyll Company has been granted a licence to manufacture engines for their own cars only, as the Société Aster are unable to supply the enormous number that the Argyll Company demands, but the Société Aster has not placed, nor has any intention of placing, an order for engines with the Argyll Company or with any other firm.

ASTER LIMITED.

SYD. D. BEGHIE, M.I.M.E., Chairman.

Oxford Street, W.



A Fine Sample of "Justices' Justice."—A horse driver who was convicted at Grantham of furiously driving a horse through the town at such a pace that one of the police witnesses said he could not have pulled up in less than 100 yards, and generally endangering in consequence all the people in the street at the time, was fined the ridiculous and trifling amount of 10s. and costs.

Tolls on Bridges.—The Motor Union, which has already been instrumental in reducing the tolls for motor cars over several bridges owned by private companies and others, has scored another success in this direction. As a result of the complaints of the heavy charge of 2s. per car, charged by the Manchester Ship Canal Company for cars crossing the Warburton Bridge on the main road between Warrington and Salford with Altrincham, the Union wrote to the Company asking that the charge should be reconsidered with a view to a reduction. As a consequence the Company have advised the Motor Union that "in future the charge for ordinary touring cars weighing less than two tons shall be reduced to 1s. per car, subject, however, to the proviso that the speed over the bridge shall not exceed five miles per hour."

Plucky Motor 'Bus Officials.—Travellers by "Vanguard" motor 'bus on the Brighton road one day last week had a thrilling experience of the dangers of horse-drawn traffic. A heavy grocer's van with two horses was, as usual, left outside a house in the neighbourhood of Crawley. The horses happened to be frightened by some passing incident, and with that excellent common-sense which characterises the breed, at once made off along the road, van and all, just as the motor omnibus with all its passengers was approaching. Under the enthusiasm of a runaway, horses never count the odds, and these would probably have charged full tilt at the motor 'bus without considering that they would be smashed up in doing so, had not the driver and conductor (T. H. Jones and G. B. Hillier) of the latter jumped off, and with great peril to themselves, succeeded in stopping the horses' headlong career. It was a thoroughly brave act, and undoubtedly averted serious catastrophe. Several of the passengers on the 'bus have written to the company in praise of the bravery of the driver and conductor, and we are glad to learn that the company have suitably rewarded their servants. The occurrence, however, is a very forcible commentary on the extreme danger of the almost universal custom of tradesmen of leaving their horsed vehicles unattended outside houses. They, of course, can be fined for doing so, though with their usual partiality the police never summon them. All automobilists who come across cases of the kind would be performing a public duty if they proceeded to prosecute, or induced one of the great automobile bodies to do so.

AN ORIGINAL AND NOVEL "EXHIBITION."—The Winton Motor Carriage Company, of America, have devised an extremely novel form of exhibiting their new touring car models through the chief cities of America. They have specially adapted one of the big railroad cars for a travelling exhibition stand, on which their latest model is taken round the country and is open for general inspection at each of the principal cities in the United States. We give more detailed particulars of this novel installation on this page, and above we reproduce the exhibition car seen from the outside, and also an interior view of one end of the railroad car.

Winton Enterprise.—A novelty in the way of, we will not say advertising, but introducing a car to the notice of the public, has been organised in America by the Winton Company. The company is naturally desirous of bringing to the notice of American citizens (we believe that is the right term) the new Winton model for 1906. To this end they have chartered a special railroad car of the 60-foot express type which contains as sole freight the Winton exhibit. The railway car is embellished outside with scenes depicting the Winton factory, the Winton car, and other matters of interest, and is making a tour of the principal cities of the United States, including Detroit, Buffalo, Rochester, Boston, Cincinnati, Indianapolis, St. Louis, Chicago, Omaha, Milwaukee, St. Paul, Minneapolis, Kansas City, Denver, Sacramento, Salt Lake City, San Jose, San Francisco and Los Angeles. The railway car is provided with "skids" at either end which will enable the public to walk up and inspect the car from every point of view, an inspection which will be specially facilitated. The interior of the railway car is provided with a wide rubber platform, which extends the whole length, and broad rubber-covered steps also lead up from the ground. These are brought into requisition when the "exhibit is on full view." The ornamentation of the

interior is on an elaborate scale, large wide windows providing a superabundance of light, and at night electric light is provided by means of 200 electric incandescents. The exhibit, which is being thus magnificently stage-managed, consists of a chassis of specially high finish, a complete car with body in place, a second complete car used for demonstrations, and also a number of subsidiary parts such as cylinders, pumps, valves, crank-shafts and gears. In addition, ample office accommodation with desks, &c., is provided in the car. The tour is being commenced at a time when the weather in the States is likely to favour trial runs, and prospective purchasers in the main towns of the U.S.A. not only have an opportunity of seeing the best car the Winton Company can produce intact, but also of taking trial runs on a similar model. A feature of the arrangements is that Mr. Shanks, who is in command of the expedition, hands over his functions at every town it arrives at to the local Winton agent, and goes on with his ordinary business. On the whole, the expedition must be regarded as a very fine testimonial to American enterprise and advertising instinct. We reproduce a picture of the car complete, and an end view of the interior.



Royal Commission on the Motor Car Acts.—The sittings of the Royal Commission were continued during last week and this, Mr. Rees Jeffreys, the Secretary of the Joint Committee of the A.C.G.B.I. and Motor Union, concluding his very lengthy and important evidence on Wednesday of last week. On the same day, Lieut.-Col. H. Daniel, Chief Constable of Hertfordshire, also was heard, and on Thursday, Mr. Sidney Straker (President of the Society of Motor Manufacturers and Traders), Mr. S. F. Edge (on behalf of the Society), and Mr. T. F. Woodfine (the Secretary of the Society), and Mr. Mason Kidner (of the Jobmasters' Protection Association), gave evidence. This week the following have been amongst the witnesses:—Lord Dunedin, Lord Justice General and late Secretary for Scotland; Mr. E. White, Secretary to the Irish Automobile Club; Dr. E. B. Turner and Mr. Noble on behalf of the National

Cyclists' Union; and Mr. C. E. Beatty and Mr. E. R. Shipton, on behalf of the Cyclists' Touring Club. Amongst those who have been called for next week to give evidence is the Earl of Shrewsbury and Talbot, President of the Automobile Mutual Protection Association.

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"Hedgehogs!"—a Comparison.—The Hon. Stephen Coleridge has been recently fined for driving too fast in Richmond Park, apropos of which experience he writes:—

I have no desire to throw any doubt upon the statement of the park keepers, that I was driving my motor car over ten miles an hour. It is a new car, and I was not very familiar with its paces.

But I wish to testify to the courtesy and tact with which the old soldier who stopped me did his unpleasant duty, and which contrasts so favourably with the truculent and irritating manners of the hedgehogs on the Andover road.

A contrast in roads used by hippomobiles (left) and by automobiles (right).

Road Destruction — Fact *versus* Fiction.—The Duryea Motor Company, of Coventry, send us the above interesting photograph of a contrast in roadways. The following letter from the Company is self-explanatory of the importance of the picture :—

"In view of the fact that one of the most important points which will be enquired into by the Royal Commission, which is now sitting to enquire into the working of the Motor Car Acts, will be allegations of certain rural authorities that motor cars cause undue wear on the roads, the accompanying photograph may not be uninteresting, seeing that it affords striking and visible evidence to the direct contrary. It represents the private road into the Duryea Works, and its significance lies in the fact that in the one photograph are shown



The 1906 Crossley Cars.—In addition to the new 40-h.p. model, of which we gave some particulars on September 16th last, the Crossley cars for next year will include a new 22-28-h.p. vehicle having many improvements over this year's pattern. Unfortunately, Messrs. Jarrott and Letts have decided not to exhibit them at Olympia, but we learn that they have already received a considerable number of orders for them. The 1906 improvements on the 22-28-h.p. model include the following:—The cylinders of the engine are of 4 mm. larger bore, being now 110 mm., with a stroke of 130 mm., and many of the moving parts have been reduced in weight, in order to enable the engine to run faster; greater facilities, moreover, exist for accurately adjusting the valve-gear and the rods that operate the igniters, as well as for examining the cam-levers that form a part of the latter mechanism. Each igniter now has double springs, instead of a single spring, and these are lengthened in order to prolong their life; the internal contact-arms also have a wider surface than formerly. Ball bearings of the D.W.M. type are fitted throughout the entire transmission, including the clutch and the gear-box, as well as the road-wheels, while other alterations that have been made to the chassis comprise an improved steering-gear working on ball bearings, a new form of expanding hub-brake, metal-to-metal foot-brake, longer side-springs, and a 10-ft. wheel base.

two roadways, one used exclusively by horse traffic, the other exclusively by motors. The road to the right is the original approach to our works, and when, a year or so ago, we undertook some work requiring the use of horse-drawn vehicles, as we found our road showed signs of getting cut up, we made the road seen on the left, and confined the horse-traffic to it. Both roads are very lightly made, just a paving of broken bricks with ashes on the top, and the average weight of our vehicles is about the same as the loaded weight of the horse-drawn wagons. The horse-road on the left, which is in very much better condition now than at times in the past, has been repaired three times, the motor road not at all since it was laid down two years ago. Comment, we think, is needless. The photograph tells its own story."

A New 12-15-h.p. De Dietrich Car.—Amongst the 1906 De Dietrich models, which are to be on view at Olympia next month, is a very interesting light car that has been designed for those who require one of moderate price built by a leading firm of makers. The chassis, which has a wheel base of 8 ft. 4 ins. and a track of 4 ft. 7 ins., can be fitted with a side-entrance, a landaulet, or a coupé body, and has a wide steering lock to render it particularly suitable for town use. It has side-chains, the gear provides four forward speeds, and the clutch is of the cone pattern. With its 870 by 90 mm. tyres, it is usually geared to about 30 or 35 miles per hour on the top speed. The engine, which has all its valves on one side, and its four cylinders cast in pairs, is controlled by levers placed above the steering-wheel, and by an accelerator pedal, while an unusual feature (for a De Dietrich car) is that the ignition system is of the high-tension magneto type—with sparking-plugs instead of low-tension igniters; the Simms-Bosch system has been adopted. The cylinders have a bore and stroke of 90 mm. and 120 mm. respectively, and a pressure-feed arrangement is used for the lubrication as well as for forcing the petrol from the tank at the back of the chassis up to the carburettor. As with all De Dietrich cars, good design and first-class workmanship are relied upon to render this model popular with the buying public. It is an extremely useful size of vehicle, for which there is undoubtedly a great demand.

A TESTIMONIAL TO AMERICAN ROADS.

A RACE was recently arranged across the great American Continent, a distance of 4,000 miles, between two Oldsmobiles (1,000 dollars being the stake run for), and the winning car, "Old Scout," duly arrived at Portland, Ore., having covered the 4,000 miles in 44 days 3 hrs. 28 mins.

The other competitor was stranded somewhere in the middle of Oregon, but will probably have arrived at the end of the journey by now. Whatever else may be said, it is a terrible testimonial to American roads that it is looked upon as a great performance by the Oldsmobile Co. to accomplish this distance in well over 44 days.

As, however, we learn that even the winning machine was several times turned over by the rough places (not made plain) which it encountered, was much discomposed by the swift mountain streams it had to ford, and the miles and miles of sand through which it had to plough its way, the feat is in reality a highly creditable one.

Under the circumstances a touch of humour is provided by the fact that the contest was, we are told, concluded under the supervision of Mr. J. W. Abbott, "Chief of the Rocky Mountains and Pacific Coast Division of the United States Government Bureau of Good Roads."

This "Bureau of Good Roads" in the United States is a conception worthy of Mr. W. S. Gilbert himself, and calls to mind the German work on the "Philosophy of the Non-existent," but we learn with satisfaction that the official of this bureau is confident that *when* good roads *are* introduced, automobiles will be able to cross the country on pleasure trips and for business. What some of the Oldsmobile "experiences"

amounted to may be gathered from the photographs which we reproduce, which certainly show that these

TOURING ON TWO OLDSMOBILE CARS IN AMERICA.—1, Trying to decide which is the best "jumping-off" point. 2, "Old Steady's" front wheel after wading through Illinois mud. 3, "Old Scout" taking its morning bath in Nebraska.

pertinacious little cars are not to be "stopped by trifles."



The 1906 De Dion Cars.—Another important stage in the gradual, steady, and sound development of the De Dion business is rendered evident by their programme for next year, for they have not only added a larger 4-cylinder model to their already comprehensive list of famous vehicles, but intend, later on in 1906, to place on the market a cheaper 6-h.p. car than the present single-cylinder vehicle of that power. Apart from the new 6-h.p. model—of which it is improbable that any delivery can be made before June—there will be the already well-known 6-h.p. vehicle, and cars of 8-h.p., 9-h.p., 12-h.p., 15-h.p., and 24-h.p. Of the last-mentioned series, the 8-h.p. and the 9-h.p., both have single-cylinder engines (of 100 by 120 mm., and 110 by 130 mm., bore and stroke), but the former has a tubular frame and a change-speed-gear of the individual clutch pattern, whereas the latter has a pressed-steel frame, a sliding spur-wheel gear, and the maker's special disc clutch; the 9-h.p. chassis is, moreover, made in two sizes, for long or for short bodies. The 12-h.p. car follows the lines of the

9-h.p. chassis in respect of all the points which we have just enumerated, except that the engine has a pair of cylinders, the bore and stroke of which is 100 by 110 mm. This twin-cylinder engine, like those having four cylinders, is fitted with magneto ignition, having dry batteries as a stand-by. No less than 300 lbs. has been taken off the weight of the latest 15-h.p. chassis, and it now has the engine-controlling levers above the steering wheel. It, too, is built in either of two lengths to suit various kinds of body, and naturally has a pressed-steel frame, a metal disc clutch and sliding-spur-wheel gear, as this year. The bore and stroke of the cylinders are 90 and 110 mm. respectively. Except that the 24-h.p. engine is more powerful, and the chassis altogether stronger—with four forward speeds instead of three—the design of this largest De Dion car resembles that of the 15-h.p. model. The chassis is, however, made in one size only, and that is of ample length to accommodate any required form of body. This largest De Dion engine has cylinders of 104 mm. bore by 130 mm. stroke.

CLUBS AND ASSOCIATIONS.

Proposed Essex County Automobile Club.—The following representative and influential automobilists have agreed to serve as a provisional committee for the purpose of forming the Essex County Automobile Club, to which we referred recently:—The Earl of Warwick (Dunmow), J. Gurney Fowler, J.P. (Woodford), G. C. Tijou, F. C. Hill (Wanstead), H. L. Osborne (Brentwood), J. Mason (Manor Park), R. L. Curtis (Prittlewell), E. E. Bentall, J.P. (Heybridge), F. G. Clements (Romford), Col. R. P. Davis (Walton-on-the-Naze), E. Bryant (Romford), Col. Tufnell, J.P., D.L. (Chelmsford), A. H. French (Galleywood), Dr. Montagu Tench (Great Dunmow), Dr. A. Butler Harris, M.A. (Loughton), B. Tabrum, J.P. (Brentwood), A. G. Reynolds (Woodford Green), Col. Lockwood, M.P. (Romford), T. Clarkson (Chelmsford), H. M. Fletcher (Loughton), Claud Crompton (Chelmsford), A. L. Buisseret (Ilford),

The medal of the Motor Yacht Club which has just been completed after the design by Mr. E. Fuchs.

MOTOR BOATING.

Coupe de "L'Auto."—For the third year this annual fixture for motor boats took place on Sunday last at Maisons-Laffitte, on the Seine, above Paris, as usual under the joint auspices of the Helice Club and *L'Auto*. Splendid weather favoured the meeting, and a good crowd gathered to witness the start, but there was only a very meagre show of starters; in fact, taking it all round, the 1905 motor boating season on the Continent has proved a fiasco from beginning to end.

In the Racers only three participated. Of these Rapee III. experienced lubrication troubles, and had to leave the race, over the 100 kilometre, for Antoinette III. to finish in 2h. 34m. 17s. The third racer was Bayard-Clement, which covered the course in 3h. 17m. 30s.

In the Cruiser class, Forcés Pas had the misfortune to miss the turning buoy and covered 6 kiloms. in excess of the 50 kiloms. constituting the race. In spite of this she managed to make the time of 1h. 38m. 2½s. against the time of Delahaye IV., the first, in 1h. 30m. 30s. Subsequently this race was annulled and permission given to Forcés Pas to re-run it on Sunday next, October 29. In the small class Mendelssohn recorded the best time over 25 kiloms. of 1h. 3m. 16½s., this boat ultimately winning the Maisons-Laffitte Cup (over 50 kiloms.) in 2h. 8m. 11½s.



THE opening of Kingsway, the new thoroughfare through the Metropolis, to the public, has been very appropriately signalled by the inauguration of a further motor omnibus service along it. The London and Suburban Omnibus Company have arranged a 10-minute service between the Law Courts and Chalk Farm, passing along Aldwych, Kingsway, and Southampton Row, through Seymour Street and Camden Town. From all that can be judged of the present success of the venture and the crowded condition of the vehicles, even a 1-minute service would be perfectly successful.

Dr. Leigh Day (Colchester), Kenneth S. Storrs (Chelmsford), R. W. Wakelin (Witham), F. Lindus Forge (Woodford).

A meeting of this committee will shortly be held at the Great Eastern Hotel, Liverpool Street Station. A representative meeting of the automobilists in the county will be held at the same place at a subsequent date, notice of which will be given.

The Society of Motor Manufacturers and Traders.—By way of rounding off the important statistics which the society have been able to get together from the motor trade for the purpose of laying before the Royal Commission on the Motor Car Acts, a number of very important concerns were amongst the final lists of firms to send in returns to the society, including such important manufacturers and firms as New Arrol Johnston Company, Limited; Swift Motor Company, Limited; Argyll Motors, Limited; Belsize Motor Car and Engineering Company, Limited; H. H. P. Deasy and Co., Limited; Carl Opperman Electric Carriage Company; White Steam Car Company; Bristol Motor Company.

Yorkshire A.C.—The opening of the club's winter season will take the form of a smoking concert on Wednesday, Nov. 8th.



FROM the statistics compiled by the Joint Committee of the A.C.G.B.I. and Motor Union, it transpires that the total approximate mileage travelled by owners of cars who have sent in returns amounts to 44,352,300. Only 16 fatal accidents have occurred.

PASSENGER CYCLE TRIAL.—At Waltham Cross, Mr. G. H. Fell on the 6-h.p. water-cooled Fafnir.

Motor Manufacturers and Traders at Olympia. The gathering was of quite an informal character, and was one of the most enjoyable at which, for some time, it has been our pleasure to assist, "mine host" Coleman subsequently providing an excellent entertainment in place of the speech-making which is usually considered such an essential feature of "thanksgiving" meetings of this nature.

H.H. the Maharajah Shri Chhatrasinhji, Rajpipla State, at the wheel of his 6-h.p. Wolseley light car.

A CASE was positively dismissed by the Morpeth Petty Sessional Magistrates recently, in which Charles Hills, chauffeur to Viscountess Ridley, was accused of driving to the danger of the public. The police, of course, said that he was going at $28\frac{1}{2}$ miles an hour exactly, but Lady Ridley said she was sure that he was not going at more than 15, and for once the Bench believed a lady rather than the police, and dismissed the case.

WITH the approach of winter, automobilists are again confronted by the problem of successfully presenting all possibility of the water in the circulating systems of their cars becoming frozen. Glycerine has long been recommended for the purpose, and Mr. S. F. Edge recently requested Mr. Veitch Wilson to carry out some tests so as to decide what proportion of glycerine renders water unfreezable. From Mr. Wilson's experiments, it appears that water containing 20 per cent. of glycerine will freeze at $27\frac{1}{2}^{\circ}$ Fahrenheit; with 30 per cent. to 21° , or a 40 per cent. solution freezes at zero. Mr. Edge accordingly recommends from 20 per cent. to 25 per cent. of glycerine, which costs, wholesale, about 7s. 6d. a gallon, being added to the cooling water in motor cars during the winter.

A THOROUGHLY delightful little meeting of friends and pressmen took place last week at the Criterion Restaurant, when Mr. Frederic Abernethy Coleman, so well known as the British representative of the White Steam Car Co., celebrated the introduction of the first 1906 models of the White car, which have recently arrived in London, and which will form one of the features of the November Exhibition of the Society of

THEY arrest people for nearly everything in America; in fact, any offence for which only a summons is issued in this country entails finding yourself in the clutches of the police in the great Republic of the West. For improperly distributing handbills about the town of Los Angeles in violation of the city ordinances, an aeronaut of the name of Burke, in the employment of Mr. Alva Reynolds, was being pursued by the minions of the law, who chased him upstairs to the top of a building, where, no doubt, they thought they would nab him nicely, like a rat in a corner, or a rabbit at the end of its burrow. But the police had not allowed for the fact that, tethered to the top of the house, was Mr. Reynolds' navigable balloon.

JUST before the police reached the top of the building, Burke reached the car of the airship, and, cutting loose, sailed away in triumph, favouring the police, who were just too late, with what some of the eye-witnesses of the scene have described as "a gesture of derision." He then circled to and fro over the town, distributing the handbills still further, the police watching him meanwhile in impotent indignation.

INDIAN MOTOR TRIALS.—Since the Delhi Bombay Trials held in January this year, the cars which were successful in that event have been much sought after, not only by European residents but by a number of Princes and rulers of native states. We are able this week to give some photographs—in addition to the above, in which Mr. Taylor is seen at the wheel of his 6-h.p. Wolseley Car at the completion of the Delhi-Bombay Trials—of two of the Indian Maharajahs who have pinned their faith to this well-built little British vehicle. These are seen on this page.

H.H. the Maharajah of Nandos on his 6-h.p. Wolseley light car.

ON Tuesday of this week the new Manx law, restricting the speed of motor cars to a maximum of 14 miles an hour, was promulgated from Tynwald Hill, and from that date has, therefore, come into force.

WHENEVER County Councils happen to be a bit progressive, it often occurs that they find their bitterest opponents among the "dignitaries" of the District Councils over whom they exercise jurisdiction. The Faversham County Council has been very wisely proposing a certain expenditure for tarring some of the main roads, a treatment which, it has now been proved, pays for itself by diminished upkeep in a relatively short space of time. The Blean Rural District Council, however, is very angry, and has enclosed a resolution to the Faversham Council, stating that they "view with dismay the proposed expenditure on tarring to prevent dust which is caused mainly by motor cars."

Only a very slight idea is conveyed by the above photograph of the extremely handsome carriage that it represents. The car is one of the new 18-h.p. White steam vehicles, which are to form one of the attractions at Olympia next month, and all of which are exceptionally well-finished specimens of British carriage-work. We gave, in our issue of September 30th last, a fully illustrated description of the 1906 type of chassis, which by its construction now enables steam cars of this type to be built.

EARL RUSSELL was one of the team of motorists arraigned before the Guildford Bench on Saturday last charged with having exceeded the speed limit through the police trap at Milford—most of the teeth of which, we believe, have been since then drawn by the Automobile Association—on September 30th. Earl Russell defended himself, and delivered an eloquent address on the whole situation, the demoralising character of police traps, the tendency of the tactics pursued to interfere with the efforts that were being made to eliminate the reckless driver, and the evil results in country districts, where the villages are denuded of police protection in order that these functionaries may lurk in hedges. The speech was absolutely conclusive, incontrovertible, and unanswerable, and the Guildford magistrates heard him stolidly through, and then fined him £10 and costs.

EARL RUSSELL has, in fact, had a run of bad luck. At Kingston Quarter Sessions, at the same time that he was fighting the Guildford case, his appeal from a previous conviction and a fine of £5 for exceeding the speed limit at Shottermill came on for hearing, and was dismissed, the conviction being affirmed with costs. Earl Russell was, on this occasion, represented by Mr. E. A. Jelf.

ONE of those acute officers of the law who can always see when there is something wrong with a motor car, though a tramp stealing cabbages in broad daylight generally escapes their notice, happened to be passed by the King's automobile at Carnforth recently. The Royal car, of course, bears no identification plates, and the policeman was all agog with visions of a possible summons to know what it meant. He telephoned to a sergeant at Skerton, and the sergeant came out to stop the car, when matters were explained to him by the driver.

MR. SOMERS SOMERSET has been drawing attention to the remarkable utterances of a Fareham magistrate. In a recent case, in which a motor bicyclist was arraigned for driving to the danger of the public, the police maintained that the defendant drove past a cross-road at sixteen miles an hour, but the defendant maintained his speed to be considerably less than this. The discussion was cut short by one of the magistrates, of the name of Radcliffe, who said that even five miles an hour would be dangerous, and that the defendant had therefore driven to the danger of the public, and without more ado put the fine at 40s. To be logical, this charming magistrate evidently should maintain, as very probably in private life he does, that to ride a motor bicycle at all is to endanger the public.

ON Monday Mr. W. T. Smallwood, of Lewisham, was fined 40s. and costs, at Bow Street Police Court, for turning his motor car round in Norfolk Street, Strand, without giving warning, by which act, it was alleged, he nearly knocked down a lady and gentleman who were crossing the road, the defendant, however, denying that anyone was in danger. Without discussing the merits of this particular case, the fact that the turning round of a vehicle in a London street suddenly, without warning, is punishable by a fine, should open up a grand source of revenue for the country, provided the fines can be directed into the National Exchequer. From personal experience we should judge that there should be sufficient fines raked in from cabmen and other drivers of horse-drawn vehicles in this respect to entirely do away with the obnoxious Income Tax, and ultimately wipe out the National Debt in a comparatively short period. But we fear that the attentions in this respect are likely to be confined to motor cars, whilst cabs and other horse-drawn vehicles are allowed to go on their old sweet way of suddenly having their horses jumped round on to unoffending passers-by without the slightest warning of any sort.

WE regret to record the death, on Friday of last week, of the wife of Mr. T. W. Staplee Firth, the well-known solicitor, who has, from the commencement of the automobile movement, been so intimately associated with legal cases referring to motoring.

THE total number of cars and motor bicycles registered by the London County Council since the Motor Car Act came into force now amounts to 8,059 and 4,808 respectively. The numbers registered between July 1st and September 30th of this year amounted to 954 motor cars and 371 motor cycles, 2,951 licences being applied for and granted during the same period. The total number of licences issued by the Council since the Act came into force now amounts to 22,549.

WE learn from Mr. Stenson Cooke that in certain sections of the Press—not, it is almost superfluous to say, of light and leading—the activity of the Automobile Association has been subjected to criticism, and a suggestion has been made that “there is such a thing as interfering with a policeman in the execution of his duty,” &c., &c. We do not think the Automobile Association need fear trouble on this point. To lie in wait and, in effect, to aid and abet in the commission of offences instead of preventing their commission is no part of a policeman's duty, as recognised by law. There have been summonses taken out on this point we know, and Petty Sessional magistrates, ignorant, as usual, of the law, have in some cases inflicted fines; but there is no doubt that if the case were appealed upon to the Divisional Court any such absurd decision would be upset.

A PRETTY bad example of what appears to be unpardonable negligence, resulting in a very serious accident, which, but for the gallantry of the spectators, might have had fatal results, occurred on Sunday last at Liverpool. The regular ferry boat for Birkenhead was about to leave the quay when a Clement car belonging to Mr. Paul Cinquevalli, the famous conjuror, was being put on board, and was partially on the gangway and partially on the steamer, when those in command of the steamer, it is reported, without taking any notice of the circumstances, started the vessel off, with the result that the motor car was precipitated into the water, turning a complete somersault on the way, the driver and a Miss Morris, who were in the car, being carried down below the surface of the water. A gentleman named Cadercio took off his coat and immediately jumped to the lady's rescue, and secured her as she came unconscious to the surface, when, by means of a life-line, both were drawn ashore, the driver being rescued by a ferryman.

A MOTOR bicyclist, Frederick Charles Payne, who, as will be remembered, on August 20th last, fired a revolver through the hand of one of a number of sailors and bargemen, who, he thought, were going to assault him on a road near Maidstone, was sentenced at the West Kent Quarter Sessions held at that town last week, to a fine of £10, and to be bound over in £20.

SINCE the Vanguard motor 'buses became a feature of the Metropolis, on March 30th last, the original service of three cars has been increased to 45, with five cars held in reserve, and altogether upwards of four million passengers have been carried by them. The Motor Omnibus Company intend next summer to make a regular feature of hiring out Vanguard omnibuses for private parties of not more than 16 people for tours in the provinces.

A FURTHER method of irritating and annoying automobilists has been adopted, we cannot say invented, by the magistrates of Steyning. A Tooting motorist, who was summoned for driving in excess of the speed limit, failed to appear before them, and they accordingly issued a warrant for his arrest. This is a very unusual proceeding, though we remember it once before being done under aggravating circumstances by the Worthing Bench; but it is strictly within the magistrates' powers to do so. Needless to say, however, if it were anything but the case of an automobilist, the defendant would be convicted and fined in his absence, and there would be no further bother about it. But the chance of compelling the attendance of a representative of the hated locomotion, in the clutches of policemen (handcuffs will be used next), is an enjoyable spectacle which the Steyning magistrates could not bring themselves to forego. They are especially virulent, as a matter of fact, owing to the result of a recent appeal from one of their decisions to Quarter Sessions, so all automobilists arraigned before the Steyning Bench had best beware.

The Hon. Charles Weld Forester was the second private owner who was able to obtain delivery of a 20-h.p. Brotherhood Car, and since March, when the earliest deliveries were made, he has made constant use of his carriage, for both short distance working and long distance tours, covering in the period a minimum of between 6,000 and 7,000 miles. A feature to which Mr. Forester, who is at the wheel of his car in our photograph, has drawn attention is his appreciation of the simplicity of the Brotherhood Car, whereby he has been enabled with practically little or no mechanical knowledge, to undertake long tours without being accompanied by or finding the necessity for a chauffeur.

moment, he considers better than when he originally had it delivered.

His many friends amongst motorists, and in the automobile industry, will be glad to hear that Mr. Henry Fowler has been appointed by the Midland Railway Company, assistant works manager of their locomotive department, in addition to retaining his post as gas engineer. Mr. Fowler has not only made a special study of self-propelled road vehicles, but has always been ready to give his cheerful assistance in connection with all important automobile events—from the time of the heavy vehicle trials in Liverpool onwards.

THE PRIME MINISTER'S NEW CAR.—Mr. Balfour has just taken possession of one of the new 60-h.p. six-cylinder live-axle Napiers. This is the fifth car which the Prime Minister has had, and it is interesting to note that although Mr. Balfour keeps scrupulously up-to-date as regards the chassis, yet he still makes use of the "tonneau" in preference to the "side-entrance" type of body.

A PROPOSITION is on foot to have a monster demonstration in Paris on Sunday, December 17th, in connection with the Paris Automobile Salon, of all the industrial vehicles available. The idea is for them to form an imposing procession and travel over a distance of about 60 kiloms. in and about Paris, finally returning to the Grande Palais.

THE inquest on W. W. Collins, who was killed whilst accompanying Mr. Arthur Brown on his racing car in July last, between Newhaven and Brighton, was resumed and closed on Monday at Newhaven. An affidavit was read from Mr. Arthur Brown, the owner of the car, that he was personally driving and at a moderate speed, and in view of the fact that the doctors reported that it was doubtful when, if ever, Mr. Brown would be able to attend the inquest, the jury returned a verdict of death by misadventure.

THE starting of large petrol motors naturally requires a very considerable amount of power, and therefore any simple method of performing it without complication would be a distinct acquisition. Hitherto, auxiliary engines or compressed-air reservoirs have been necessary, but now the Wolseley Company have hit on the happy expedient of using cordite cartridges for the purpose. The cartridges are easily inserted in the cylinder-heads, and the necessary firing gear is simple. At present, this system has been used very successfully by them on their new 140-h.p. six-cylinder engine, built for an American motor railway coach.

A REPAIR bill including only one inlet spring, one exhaust spring, and a new pump-nut, the latter being broken by a mechanic over-screwing it, is as modest a record as any car owner could wish for. This is, we learn from Mr. J. E. Bush, the outcome of using his Beeston-Humber car in covering a distance of about 2,000 miles over a period of six months. Mr. Bush states that the car has had "in and out" running in his district, which is a very hilly one, in all weathers, day and night, and if anything the car, at the present

At the Roheny Petty Sessions recently (in Ireland), the Chairman, Mr. T. L. Plunkett, D.L., called the attention of the police to the great danger caused to other road users by carters carousing in public-houses and leaving their horses and carts unattended outside. He was also in favour of County Councils compelling carters to carry lights on their vehicles, as they were the most dangerous class to be met with on the roads.

PEOPLE of the kind who join the Highways Protection League have sometimes waxed quite facetious in the remarks they make about motorists arraying themselves in the skins of wild beasts. They will now have another text on which to descant, the most recent invention reported being a motor coat made of the skin of that dread serpent the South American anaconda, which is practically as big as a boa-constrictor, and dreadfully poisonous at the same time. By special treatment it has been found that his skin can be so prepared as to cause the scales to permanently adhere to it, and this makes, it is alleged, a very light, pliable, warm, and watertight coat. As the colour of the anaconda is brown picked out with gold, and further adorned with black spots, motorists in goggles and anaconda skins are likely indeed to look something of a terror to those who do not sympathise with them.

MR. GUS ELEN, the well-known comedian of the "Halls," is making a motor car tour from his house near Clapham Common to Blackpool, in which he is attracting a considerable amount of attention by arranging to bestow a souvenir upon everybody along the route who happens to recognise him, and gives evidence of his recognition by waving a handkerchief. He was first recognised by a policeman near the Swan at Stockwell, who behaved "in the usual manner" as if he formed part of a police trap, but on receiving the souvenir from Mr. Elen, the constable dissembled whatever connection he might have had with any such underhand arrangement, and smilingly accepted the gift. In fact, Mr. Elen says that the police all along the route were the first to recognise him, and became so engrossed with the mementoes bestowed upon them that they failed to take any notice of the speed at which he was proceeding. Possibly this method of dealing with the police generally may be found useful by other automobilists, and we present the idea (free of charge) to the Automobile Association.

POLICE PROCEEDINGS.

Motoring Schools and Premiums.—Before Mr. Curtis Bennett, at Westminster, George Stephenson, 27, of Royal Avenue, Chelsea, and Harry McAllister, 27, of Richmond Road, Dalston, were charged, on remand, with conspiring to obtain money by false pretences and with obtaining various sums by fraud and misrepresentation.

Mr. Williamson, prosecuting on behalf of the Public Prosecutor, said the evidence would disclose a cruel and wicked system to obtain sums of money as premiums from young men desirous of being motor car drivers. Prisoners extensively advertised in very glowing terms that more motor drivers were wanted, that they had the finest establishment in London, that unlimited tuition was given, and that appointments were found for applicants who became pupils. By these advertisements young men were induced to apply at the Buckingham Gate Garage, Victoria Street, and sums of about five guineas were readily obtained from many who could ill afford to lose the money. Practically all the tuition given by the accused consisted of some chalk drawings on a blackboard, a description of an old cylinder, and one or two motor drives along the Embankment or in Battersea Park. The cars shown as belonging to the garage were, in fact, only stabled there.

James Alfred Hembrey, formerly a public-house manager, said he answered prisoners' advertisement on August 30th. A week or two afterwards, being dissatisfied with the teaching, and what he had heard, he asked about the return of his premium. McAllister wrote him a certificate that he was a good mechanic and careful driver. The testimonial was of a very laudatory character, and with it witness got a situation as a driver. But he was only there two days. He got on very well while driving about with another coachman, and acting as footman. The owner asked him to try his hand on a new motor, a 30 or 40-h.p. Daimler. He got up and pulled the wrong lever.

Mr. Williamson: What was the result? Witness: The result was that I got the sack on the spot.

Witness and others were severely cross-examined by Mr. Wildey Wright, for the defendant Stephenson, who, it was said, went to Yorkshire to raise money to carry on the garage when the sheriff was put in possession. It was also said, for the defendants, that they had given good practical lessons to the several prosecutors.

Mr. Curtis Bennett remanded the prisoners, bail in £100.



COMMERCIAL POINTS.

AMONGST others who purchased cars last week at one of "The Motor House" weekly auction sales, were the Baron de Blaquiere and the Earl Annesley (Viscount Glerawly).

THE Continental Tyre and Rubber Company (Great Britain), Limited, inform us that from the 25th of October their prices for Continental motor tyres have been advanced five per cent. on account of the continued rise in raw rubber. The advance came into force on the date mentioned, with the exception of those cases where their customers have made firm contracts. In such instances the increase will take effect on the expiration of such existing contracts.

MR. WALTER W. BANNISTER has just opened repair works and garage at 62, King Street, Maidstone, lately occupied by Messrs. Loder, coachbuilders of a century standing. Mr. Bannister has installed electric light, pit and washdown on the ground floor, whilst a lift for small cars to the first floor has been erected, where electrically driven tools, steam vulcanising plant, &c., are available. The garage is on the main London-Folkestone Road.

THE Mersey Railway Company's new omnibuses, to which we referred in our issue of the 14th inst., are, we learn, being fitted with Royal Sirdar buffer tyres. In addition, Royal Sirdar buffer tyres we learn are not only also fitted to the "Arrow" motor omnibuses, of one of which we gave an illustration last week, but to the Rennie and Prosser motor lorry, of which a picture was also given in the same issue, and on the same page.

THE Rover Cycle Company, Limited, this week decided to alter their name to the Rover Company, Limited.

MR. A. DARRACQ, one of the heads of the Darracq firm in France, has shown his very warm appreciation of the Dunlop tyres

in their association in the victory of Hemery's Darracq car in the Vanderbilt Cup by writing to the Dunlop Company as follows:—
"We are delighted to state that your tyres have come through this difficult trial in a manner which fully justifies the confidence we placed in them."

A NEW and extensive repair department has been just completed by the Daimler Motor Company at their works in Coventry. The completion of this has been materially expedited in view of the requirements of owners, who find it advisable to have their carriages overhauled in the autumn rather than in the spring, when the manufacturer is usually overwhelmed with work. The Daimler Company, by this new installation, are able to deal expeditiously with all repair work entrusted to their charge.

Expert Tyre Repairers.—We are informed by Messrs. Harvey Frost that they have trained a number of youths in the art of repairing tyres by their process, and that several of these are available for accepting new positions. No doubt there are many who would be glad of the opportunity to engage someone known to be competent in this work, for most motorists know from experience how much they can save by the judicious care of their tyres.

THE Eadie Manufacturing Company, Limited, the well-known makers of cycle and motor fittings, by their report show profits of £47,132 in 1905 against £30,685 in 1904.

THE directors of Aster, Limited, are paying a dividend of 15 per cent. on the ordinary shares of the company, after allowing for the 6 per cent. preference dividend on the first year of their trading, ending September 30th last, and are placing £6,000 to reserve for investment.

THE Swift Cycle Company, Limited, for the past year show by their accounts earnings amounting to £35,000. Out of this the directors propose to pay a dividend of 10 per cent. on the ordinary shares, and they report that the demand for the company's motor cars has much increased, until the present factories are insufficient to meet their requirements, and provision for further extension is therefore now sought.

THE season of the Sunbeam Motor Car Company, of Wolverhampton, has been a successful and satisfactory one, by the report of the directors recently issued. The profit of the year amounts to £3,808, out of which the directors are paying a dividend of 7½ per cent., the balance being appropriated to reserve, formation expenses, goodwill, carry forward, &c. Prospects for the coming season are good, and the directors report that orders are already booked for a considerable proportion of the output.

It is evident from the above photograph that, even if some motorists are apt to over-lubricate their motors, there are others who do not. The parts shown in our illustration were once a connecting-rod and a gudgeon-pin in a three-cylinder Brooke engine, but it will be noticed that—apart from more brutal injuries finally sustained—the latter is not only fractured but half worn through, and that the corresponding side of the bush in the latter is quite worn through. How an engine in such a condition could have been kept at work so long, and the inevitable "knocking" be put up with, is somewhat of a mystery, but no one will be surprised to hear that a crash came at last, and that absolutely no oil was present in the crank-chamber.

NEW COMPANIES REGISTERED.

East Berks Motor and Engineering Company (Limited), Wokingham Road, Bracknell, Berks. — Capital, £10,000 in £1 shares. Object, to acquire the business of motor car and cycle agents, &c., of E. Eatwell and M. J. Sale, at Bracknell, Berks.

• **Fred. W. Baker (Limited)**, 59, Hagley Road, Stourbridge. — Capital, £10,000 in £1 shares. Object, to acquire the businesses (1) carried on by the West Midland Motor and Cycle Company, Limited, at New Road; (2) the business carried on by F. W. Baker at Oldwindsford; and (3) the business carried on by the executors of the late A. Pearson at 59, Hagley Road, all in Stourbridge, Worcestershire, of manufacturers of and dealers in motor cars and motor and other cycles of all kinds, &c. First directors F. W. Baker, F. Cremononi, T. Robinson, and F. Gibbons.

Public Motors (Limited), 11, Queen Victoria Street, E.C. — Capital, £1,000 in £1 shares. Object, to carry on the business of motor car and omnibus proprietors.

Rosling (Limited). — Capital, £10,000 in £5 shares. Object, to take over the business of A. Rosling, motor engineer and manufacturer, carried on at Chelmsford. A. Rosling is permanent governing director.

The Scottish Motor Engineering Company (Limited). — Capital, £40,000 in £1 shares. Object, to take over certain

property at Granton, near Edinburgh, and to carry on the business of motor car manufacturers. (Scotch Company).

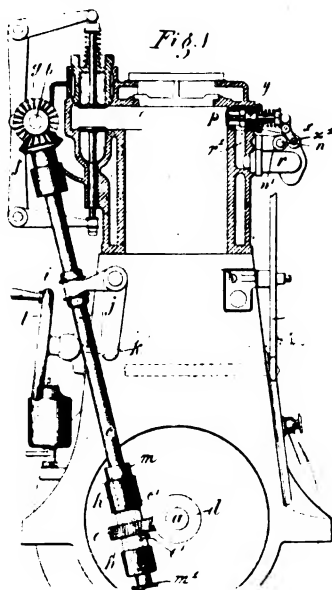
THE Scottish Motor Engineering Company, Limited, has, we learn, been established in Edinburgh, with works situated at Granton, on the Firth of Forth. This engineering scheme is particularly aimed at the construction of motor buses, vans, luries, and agricultural motor implements, and is another instance of the appreciation by Scotland of the huge possibilities of the motor vehicle in the near future. The works stand on seven acres of land, and those who have associated themselves with the company as directors are: Mr. William Alexander, of Stirling, who is chairman of the company, and is managing director of Ogston and Tennant, Limited, of Glasgow; Mr. Lewis Maclellan, of the firm of Lewis and John Maclellan, engineers, of Glasgow and London; Mr. G. Vincent, of the Auto Van and Bus Company; and Mr. J. Clingoe, who has been connected with several London firms. Mr. Clingoe will take up the position of managing director. We are informed that the construction of the mechanical portion of these vehicles will be particularly simple and of such a character that a minimum of special training will be required for the purpose of becoming efficient in driving them in ordinary commercial practice.

BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E., Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

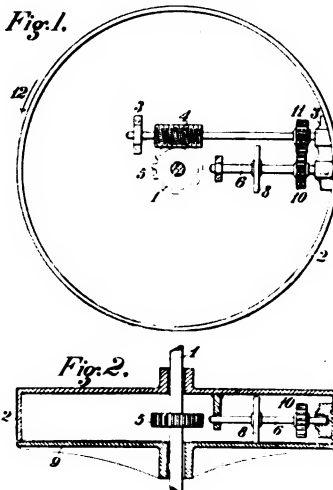
2127. February 3rd, 1905. Improvements in Internal Combustion Engines. Henry Campbell, 13, Westbourne Crescent, Salterhebble, Halifax, Yorks. The improvements comprise means for altering the positions of the cams which actuate the inlet and exhaust valves of the engine, and for admitting compressed air or other gas from an outside source to start the engine. There are two figures. Fig. 1, is an end elevation, partly in section. *a*, is the crank-shaft, and *b*, a horizontal cam-shaft running along the side of the cylinders and carrying the cams for actuating the inlet and exhaust valves, which cam-shaft is an engine having one impulse for every two revolutions of the crank-shaft, requires to be rotated at half the speed of the engine. This rotation is effected by means of an intermediate

for the reversal of the direction of the engine's revolution. To raise the intermediate shaft, *c*, a grooved collar, *i*, is secured in a convenient position thereon, the grooved collar being engaged by one end of a bell-crank lever, *j*, actuated by a screw, *k*, from handwheel, *l*. Collars or stop pieces, *m*, *m'*, may be employed to limit the extent to which the intermediate shaft can be raised or lowered. An additional cam-shaft, *n*, running parallel with the main cam-shaft, *b*, on the opposite side of the cylinders is employed for operating the valves, *p*, to admit and cut off the compressed air or gas supplied to the cylinders through the pipe, *r*, for starting the engine. This auxiliary or starting cam-shaft, *n*, is rotated at the same speed as the main cam-shaft, *b*, by means of a chain driven from the main cam



shaft, *c*, driven from the crank-shaft, *a*, by skew-gear wheels, *d*, *e*, which intermediate shaft drives the cam-shaft, *b*, by bevel or mitre wheels, *f*, *g*. The intermediate shaft, *c*, passes through two bearings, *h*, *h'*, between which bearings is situated the skew wheel, *e*. The boss of the wheel, *e*, has a fixed key on projection, *c'*, engaging a keyway or recess, *c'*, formed in the intermediate shaft, *c*. By raising the shaft, *c*, rotary movement is therefore imparted to it independently of that derived from the wheel, *e*. The intermediate shaft on being raised passes through the bevel wheel, *f*, but being keyed thereto by means of a feather key, causes the bevel wheel to rotate with it, such rotary movement being conveyed to the cam-shaft, *b*, which is moved through the angle required to set the cams in the proper position

shaft, *b*. The rotation of the shaft, *n*, causes cam, *p*, thereon to press against pawls, *x*, *x'*, secured to bell-crank levers, *x*, and thus open valves, *p*, to admit the compressed air or other gas from the pipe, *r*, at a pressure of, say, 50 or 100 pounds per square inch, thereby moving the pistons of the engine downwards, such air pressure being cut off by the closing of the valves before the end of the piston stroke. The pressure from the pipe, *r*, enters through a port, *r'*, which opens into the centre of the valve seating, and in order to prevent the starting pressure from blowing the valves open, the valve stems are made with an enlargement, *y*, of the same area as the valve heads, so that the pressure on the back of the valve head and on the enlargement is equal. —October 4th, 1905.



24974. 17th November, 1904. Variable Speed Gear. Budapesti Malomépítész és Gépgyár Podvinecz és Heisler, Váci ut 141, Budapest, Hungary. This invention relates to variable speed gear adapted for use with automobiles and lathes. A drum loosely mounted on the driven shaft and connected with the driving shaft by means of a belt, chain or toothed gearing has secured within it a worm pivotally mounted on its own axis so that on rotation of the drum the worm is turned in the direction of rotation, and by means of separate mechanism also rotated round its own shaft or axis, a worm wheel meshing with the worm and fast on the driven shaft being turned in inverse relation to the speed of rotation of the worm. By means of the variable adjustment of the speed of rotation of the latter the driven shaft may be rotated at different speeds and even brought to rest. There are four figures. Fig. 1 is an elevation with the cover of the drum removed. Fig. 2 is a cross section. In the interior of the drum, 2, connected with the driving-shaft by belt, chain or toothed gearing, and loose on the driven shaft, there is secured a worm, 4, carried in bearings, 3, which meshes with a worm-wheel, 5, keyed on the driven shaft. Beneath the worm, 4, in radial direction, is a shaft, 6, rotatably mounted in the interior of the drum, 2, which shaft, 6, carries a small friction wheel, 8, adjustable in axial direction. In contact with this wheel is a friction disc fixed on the frame of the machine and having the driving-shaft passing through it along which it is adapted to slide. The shaft, 6, and worm, 4, are connected by transmission gearing, 10, 11. If the drum, 2, is rotated in the direction of the arrow, 12, the worm, 4, is also turned in the same direction. If there were no connection between the worm, 4, and the shaft, 6, then in the rotation of the drum, 2, the worm-wheel, 5, and also the driven shaft would be rotated by the worm, 4, in the same direction and at the same velocity. In the rotation of the drum, 2, however, the friction-wheel, 8, rolls on the face of the friction-disc, 9, whereby the shaft, 6, and also the worm, 4, are rotated around their own axes, so that the movement of the worm-wheel, 5, and of the shaft, 1, is retarded, the retardation depending on the speed with which the worm is rotated on its axis by the friction-wheel, 8. By moving the friction-wheel on the shaft, 6, the speed of the driven shaft, 1, can be regulated independently of that of the driving shaft, and the driven shaft can be brought completely to rest. The sliding movement of the friction-wheel along its axis can obviously be effected by any suitable means. —October 4th, 1905.

Patent Specifications Published

Applied for in 1904.

Published October 26th, 1905.

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|---------|--|
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| 25,383. | F. PILAIN. Live axle. |
| 25,018. | T. and F. CARTER. Hardened steel tyre. |
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| 27,692. | F. KARMELI and M. MAHN. Motor vehicles. |

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Nov. 8, 15, 22, 29, Dec. 6, 13	Practical Lessons on Motor Cars (Ladies' A.C.).
Nov. 17	*Quarterly 100 Miles Trials.
Nov. 17-25	Society of Motor Manufacturers and Traders Exhibition at Olympia.
Nov. 17-25	Stanley Show.
Nov. 22	Motor Union Annual Dinner, Trocadero.
Nov. 24	A.C.G.B.I. Annual Dinner, Hotel Cecil, 8 p.m.
Nov. 25	North London A.C. Annual Dinner.
Dec. 4	"Explosion and Flame in Relation to Motor Car Engines," by Dr. W. R. Ormandy (Manchester A.C.).

1906.	
Jan. 26-Feb. 3	Crystal Palace Motor Show.
March	Cordingley and Co.'s Motor Show.

* Automobile Club of Great Britain and Ireland Events and Papers.

Foreign Events (Trials, Races, &c.).

1905.	
Nov. 14-18	Sydney-Melbourne Trial.
Nov. 21-27	French Voiturettes Trials (L'Auto).
Dec. 8-24	Paris Automobile Salon.
1906.	
Jan. 13-20	Brussels Exhibition.
Jan. 13-20	American A.C. Show, New York.
Jan. 17-20	Western Indian Trials.
Jan. 22-27	Ormond-Daytona Beach Races.
Jan. 26-30	Calcutta Motor Trials.
April 1-15	Monaco Motor Boat Exhibition and Races.

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PASSING EVENTS.

"Audiatur et Altera Pars."

EVIDENCE has already been tendered before the Royal Commission by representatives of the leading automobile official organisations, including the Chairman of the Automobile Club and the Motor Union, and by the Secretary to the Joint Committee of the A.C.G.B.I. and the Motor Union, and now the body which has arrogated to itself the misleading title of the Highways Protection League, but which, as our readers are well aware, is an anti-automobile association pure and simple, is endeavoring to do what it can to influence the opinion of the Commission in an anti-automobile direction. We have not very much fear of the result. The Highways Protection League has for a long time past shown itself, both in its general proceedings and methods of action, to be so one-sided and so incapable of estimating the true

elements of the present situation, that anything which they or their members can have to offer in the way of evidence before the Royal Commission, can scarcely fail to benefit the automobile cause by its very contrast with the cogency and uncontrovertible character of the evidence which has been collected by the Joint Committee on behalf of the automobilist cause. So we trust they will all be heard, and heard at the length which they no doubt desire. It is doubtful indeed whether most of the people which the League calls upon to tender their evidence to the Commission, have any *locus standi*, or whether the Commission would in any way be bound to hear them. But we hope they will be heard. We should be very sorry if, considering the elaborate weakness of the case which the League has prepared, it should not be placed before the Commission. It would be nothing short of a misfortune that the Commission should only hear the situation from one side. In that case they might be disposed to think that there were arguments of some cogency on the other side, but that they had not heard them. All that we desire is that the Commission should have an opportunity of thoroughly investigating the relative merits of the automobile and anti-automobile points of view, and this the Highways Protection League is evidently bent on giving them. May they continue their activity on the lines they have hitherto adopted, till the automobilists' case is won. After all, they are our most convincing assistants.

◆ ◆ ◆ Injustice Coming Home to Roost.

THE very sensible determination of Mr. Leycester Barwell to refrain from contributing to charities, local or otherwise, in consequence of the large sums in which he has been mulcted for the merely technical offence of slightly exceeding the speed limit of motor cars, has been followed by other automobilists, and is bearing fruit of the most satisfactory kind. The action is being noted by the Society papers, and we have received one quite acidly-written paragraph from one of them intended to show that this course of action is everything that it ought not to be. We refrain from quoting the somewhat exuberant adjectives which our elegant contemporary has employed in this connection. But the general argument is that a great injustice is being done to the previous recipients of charity by the action of the automobilists who now refrain from further contributions. Well, it is a new argument that charity is an indefeasible right which the opulent possessor of property has no justification for refusing! But let that pass. Even the pockets of those reputedly wealthy people who are enabled to maintain automobiles (many car-owners, goodness knows, are far from being able to boast of excessive opulence) are not inexhaustible. If they are fined once a month or oftener, to the extent of £5 or more in costs, this will represent an increased expenditure of from £60 to £100 or more per annum, according as the victims elect to defend their cases or not. And £100 a year in charity is as much as the average man with a couple of thousand a year can afford to spend. If this £100 a year is being exacted in magisterial fines for merely technical offences, which, in point of fact, do no harm to anybody, it is no great wonder that the well-springs of charity become dried up. The important point, however, is that the decision of these automobilists is exciting attention, and that is the main thing. People are beginning to recognise that persecuting well-to-do members of the community, in the way to which we have become painfully accustomed, may produce unpleasant

reflex effects; and when that fact is established a considerable step is gained. The public will then be wakened out of passive acceptance of the position that all automobilists should be outside the pale of common justice with certain sections of the "great unpaid," and it will then begin to dawn upon the public that if this sort of thing is allowed to go on much further without check, it may bring about results in unexpected directions which may even ultimately reach them, and affect directly or indirectly their personal interests. We think, therefore, in the first place the thanks of automobilists are due to Mr. Leycester Barwell and others, and in the second place due to those papers who have become so angry at their attitude.

◆ ◆ ◆ Improvements in the Divisional Court.

It would certainly seem that the wave of enlightenment which appears to be affecting the country generally, with the exception of a few Benches of magistrates, is producing its effect on the Divisional Court. At any rate we think we are justified in drawing this conclusion from the recent case in which the Lord Chief Justice with Justices Wills and Darling as coadjutors, has entered a rule *nisi* for a writ of *certiorari* to issue against the justices of the borough of Bedford. The rule was applied for on behalf of Mr. Hindley Jenkins, who had been convicted by the Bedford Bench on the usual charge of driving to the danger of the public, &c., on the ground of biased prejudice on the part of one of the magistrates, viz., the Mayor of Bedford, Mr. H. Burrige, who was one of the magistrates who tried the case. There appears to have been a *prima facie* case for the contention of prejudice. It is not too much to say that Mr. Burrige's tactics appeared to combine in the well-known Irish phrase, the functions of "judge, jury, and persecutin' counsel all in one." Mr. Burrige had "laid the information" which led to the proceedings, and had then sat on the Bench with the other magistrates, retired with them to consult, and, therefore, apparently assisted in all ways in coming to a decision on the case. On hearing these facts, the Divisional Court decided to grant the rule asked for. We submit that this is a proof that the Divisional Court is becoming more enlightened, as our readers will call to mind that there were some years ago a couple of similar cases, in which the grossest bias, on the part of the magistrates trying them, was clearly shown, but a similar application for a *certiorari* was refused on the extraordinary ground, it will be recollected, that magistrates might be prejudiced against motorists, but so they were against *poachers*, and no one, according to one of the learned judges, ever heard that prejudice against poachers was a ground for impugning justices' decisions. We have travelled some distance it would seem, even in the Divisional Court, in the last two years. It is well to know that their Lordships seem no longer to regard motorists as on a precise level with poachers.

◆ ◆ ◆ Nothing like Leather.

EVERYTHING that can be made of leather is to be seen at the Annual Shoe and Leather Fair, held this week at the Agricultural Hall, the only things not made of that universal commodity being the instruments of the brass band, which discourse sweet music to the visitors, and the glasses out of which they quaff their beverages. It is satisfactory to find that the British leather trade is thoroughly holding its own. There was a great outcry at one time about the effects which the motor car industry was having, or was likely to have, upon it.

With the anticipated rapid extinction of the horse, it was supposed that the great demand for saddles for riding the horse, harness for attaching him to his duties, and whips for persuading him to proceed at a reasonable pace, would all be at a discount, that leather sellers and manufacturers would be bankrupt and that pigs and other quadrupeds which supply the commodity, would, in market language, be "looking up" or walking about with broad smiles on their faces. It is most satisfactory to learn that this terrible anticipated crisis is as far off as ever, and that, so far from annihilating the leather trade, the automobile has proved its greatest friend. This is due, not only to the large quantities of leather required for upholstering the bodies of cars, but to the enormous demand for leather which its employment for motor car clothing of all kinds, both for men and women, is evoking. In fact, high-class leather clothing is now being made by some of our leading English manufacturers from entirely British materials and with home labour, in as many as 300 different tints, some of which, at any rate, are calculated to appeal to the most artistic or fastidious eye. This happy state of affairs is one of the many proofs of the old saying that "of all mistakes which we can commit, that of prophecy is the most gratuitous." It is particularly gratuitous in the case of pessimistic prophecies regarding the effects of a new industry.

Getting out of it.

WE gather that the price of hemp has gone up in nearly all the districts over which the London County Council exercises its sway. The reason is that owing to the increase in rates due to the proceedings of that body, the ratepayers who find themselves unable to meet the demands are hanging themselves, wholesale. There have been several of these sad cases in one week and altogether the thing is far from a joke. There can be no question that the enormous outlay of the Council on the electric tramification of London, and the enormous immediate increase in the rates which has resulted, has had a great deal to do with it. Some considerable time ago when the motor 'bus first appeared upon our streets, we uttered a word of warning to the County Council in regard to the line they were adopting. As the motor 'bus develops, the cost of installing these expensive tramways is not in any way diminished, but their earning capacity is being distinctly impaired. If the wholesale expenditure in tramification had been incurred some ten or fifteen years ago, when the principal Continental towns adopted the electric tram, there would have been little or nothing to urge against it. London would then have been abreast of general progress, and, instead of its means of locomotion exciting the amused sympathy of foreign visitors, they would, at any rate, at that time have been up to date. Now, however, things are totally different, and the Council's proposals amount to inviting, or, rather, compelling, the heavily burdened ratepayer to sink millions in a form of locomotion which everything shows is likely to be quickly superseded, or, at any rate, largely deprived of its earning capacity. Now, therefore, any chance of the Council seeing the money of their ratepayers back again is much more remote. The influences which have determined the controlling spirits of the Council to sanction these contracts and this enormous expenditure of course still remain, but that the ratepayers put up with the situation is one of those mysteries of complaisance which nobody but the absolutely complaisant will be able ever to fully comprehend.

Tramcar Speeds.—The Automobile Club has been compiling statistics to show the speed of electric trams in different towns throughout the kingdom. The high speeds registered will not surprise anyone who has observed at all carefully the pace at which electric trams career along in defiance of the Board of Trade, and go to show, as we have always contended, that 20 miles an hour is not by any means an out-of-the-way speed for an electric tramcar when it gets a clear stretch of road. There can be no doubt about the correctness of the times noted, as they were taken by Mr. T. H. Woollen, M.I.Mech.E., F.S.A., head timekeeper (honorary) to the Automobile Club, and timekeeper to the National Cyclists' Union. A summary of the results obtained is as follows:—

Summary of Speeds of Electric Trams in Certain Towns.

Town.	Distance over which Timed.	Number of Cars.	Average Speed of		Speed of Fastest Car.
			All Cars Timed.	Six Fastest Cars.	
	yards.				
London (Streatham Hill)	110	22	18'95	20'45	21'22
Ealing ...	88 and 110	84	13'52	17'44	18'44
Newport ...	110 and 44	56	12'94	16'16	17'25
Manchester ...	162, 148, 144, 158	20	17'91	20'36	21'25
Leeds ...	88	34	16'41	22'00	22'70
Cardiff ...	88	39	14'18	16'58	17'30
Derby ...	100	10	15'75	17'06	18'00
Cheltenham ...	88	20	12'46	13'50	14'06
Bath ...	88	27	13'28	15'27	16'07
Bristol ...	88	38	12'91	14'76	15'00
Sunderland ...	—	—	—	—	17'00
Ayr ...	—	—	—	—	16'40
Pollockshaws ...	—	—	—	—	16'40
Huddersfield ...	—	—	—	—	15'00

Motorist Persecution Bearing Fruit.—A drastic revolutionary writes to one of the morning papers, and he has positively the hardihood to propose the curtailment of the powers of the "great unpaid." He suggests that these functionaries should in future be employed for services for which they are fitted, viz.:—

- (1) The signing of official and post-office declarations.
- (2) Administration of oaths.
- (3) Granting and signing summonses.
- (4) Hearing cases for remand purposes only, with power to dismiss the case.

while the administration of justice should, in his opinion, be in all cases exercised by paid public functionaries similar to stipendiary magistrates, whom he would prefer to call "petty judges." Such an official would be a great improvement, he thinks, upon the magistrates' clerk, who at present is "an unsatisfactory combination of public prosecutor, cross-examiner, and Bench," and would be but little more expensive. This scheme, in fact, is almost identical with the system prevailing in Germany.

THE Municipal Technical School of the city of Liverpool has organised a series of lectures on Motor Car Engineering, which are to be delivered by Mr. G. B. Mercer, A.M.Inst.C.E., head of the firm of Robinson and Price, of Liverpool. The first lecture, which was delivered on Wednesday last, was a conspicuous success, as many as 70 students attending, and there is every reason to suppose that a successful series of lectures will be held.

VANDERBILT CUP RACE.—Another remarkable and interesting view of the course, at the Grand Stand, a few minutes after the completion of the race, when the public had broken on to the roadway.

VANDERBILT CUP RACE.—In connection with the allotment of numbers in this race, it was suggested that No. 13 should be skipped, superstition against getting good luck behind this number being somewhat pronounced amongst the competitors. This suggestion was, however, not acceded to, and to get over the difficulty, Campbell who had No. 13 allotted to him, and who drove the 120-h.p. Mercedes on behalf of Germany, denoted his car by the sign "X," as seen in our photograph; No. 14, and the remainder of the cars still to be sent off, are ranged behind, ready for their call.

HIGH-TENSION MAGNETO IGNITION.—PART XIV.

BASSÉE-MICHEL SYSTEM (1906 MODEL).

(Continued from page 1320.)

The Low Tension Gear.

It has already been mentioned that one end of the armature coil, C, is connected to the slip-ring, C¹. From

this ring the electricity is collected by means of a carbon brush, C⁴, which projects through a slot in the bearing-plate, M¹. This brush is carried in a small tube, or brush-holder, C⁵, which contains a weak spring for gently pressing the brush against the slip-ring as the armature revolves. The position of this brush, and the manner in which it is carried, are indicated in Figs. 2 and 5, and it will be noticed in Fig. 5 that the brush-holder is provided with a screw-cap which enables the brush to be removed, when necessary, without trouble.

The brush-holder is not fixed directly to the front bearing-plate, M¹, but to another plate, K⁴, which is free to move independently. This plate, K⁴, which is shown separately in Fig. 4, carries all the contact-breaking mechanism, which is visible in the lower part of Fig. 5—with the exception, of course, of the cam, B⁴, which is mounted on the end of the armature spindle, B¹. The plate, K⁴, is mounted about a boss on the bearing-plate, M¹, and is retained in that position by means of a spring, K⁵, and slotted washer, K⁶. This method of fastening—which is clearly indicated in Fig. 5—is very simple and effective; by removing the washer, K⁶—which is used on the principle of a bayonet-socket fitting—the plate, K⁴, can be instantly removed. The reason for mounting the plate, K⁴, independently, in the manner described, is in order to enable it to be rocked about its bearing; this being the method adopted for "timing," as will be explained presently.

On the same fitting which directly carries the brush-holder, C⁵, is the terminal, C¹², which is thus virtually the live end of the armature-coil. Both the terminal, C¹², and the brush-holder, C⁵, are, of course, carefully insulated from the plate, K⁴. A wire is led from this terminal, C¹², through the switch, to the induction-coil—which will be described later—and another wire leads the electricity back again direct from the induction-coil to another terminal, C¹³, on the magneto.

The terminal, C¹³, is also insulated from actual metallic contact with the plate, K⁴, but it is electrically connected with the small bracket which carries the adjustment-screw, C⁷, forming one part of the contact-breaker, C³. The other part of the contact-breaker is formed by the bell-crank lever, which is operated by the cam, B⁴. As the bell-crank lever is electrically connected with the plate, K⁴, which forms an "earth," the terminal, C¹³, is thus equivalent to the "earthed" end of the armature winding, so long as the two points of the contact-breaker, C³, are held together. Directly they are separated, however, the electrical circuit from the armature, through the low resistance primary winding of the induction-coil, is broken; and it is at this instant that a

spark occurs at one of the ignition plugs on the engine. In order to ensure an entirely satisfactory connection between the armature core and the magneto frame, a carbon brush—which forms part of the lubricator—is

FIG. 4.—The Bassée-Michel High-Tension Magneto (1906 Type).—View of the front Bearing Plate, M¹; also separate views of the principal component parts of the High- and Low-Tension Mechanisms.

arranged to press against the driving end of the armature spindle.

The Induction Coil and Condenser.

In most cases it is usual for induction coils to be constructed complete with their own condensers, but in the

on the magneto, but the wire leading from T^1 to C^{12} passes through the switch. Of the other two terminals, D^1 , is the "live" end of the secondary or high-tension winding, and, E , is the other end of the same winding which is "earthed." This terminal, E , is also common to that primary coil which has its other end connected to the terminal, T^1 .

Connected to the terminal, D^1 , is a strip of metal projecting towards the terminal, E . The space, D^2 , between these two members forms a safety-spark-gap for the protection of the coil in the event of a fault in any part of the external high-tension circuit. Should, for instance, one of the wires leading to an ignition plug be broken, a spark will, in all probability, occur at D^2 , but in any case the width of this gap is such that a spark will pass if the voltage is greater than is safe for the insulation of the coil. A sheet of mica is placed beneath the gap, D^2 , in order to protect the case.

The condenser is rather larger on this than on most machines, and it is retained in position by the bearing plates, M and M^1 . One side of the condenser is, of course, "earthed," and the other is provided with a terminal by which it can be electrically connected to the contact-breaker. The strip of bent brass, F^3 , by which this connection is made, is prominent in Fig. 3, and the manner in which the connection is maintained by means of the contact, F^5 , and spring, F^7 , for all positions of the plate, K^4 , is clearly shown in Fig. 4. The spring is connected to the terminal, C^{13} , and the contact, F^6 , to the connector, F^5 ; both being, of course, efficiently insulated.

This form of construction is adopted in order to obviate the necessity, which would otherwise exist, for connecting up the condenser by a flexible wire.

(To be concluded.)

FIG. 5.—The Bassée-Michel High-Tension Magneto (1906 Type).—View showing, on a large scale, the mechanism carried by the Bearing Plate, M^1 , which is illustrated in detail in Fig. 4.

Bassée-Michel system these are made as separate units. The induction coil, which is illustrated in Fig. 1, is contained in a box, and the condenser is enclosed in an aluminium case, F^3 (Fig. 2), which is accommodated in the space, between the limbs of the magnets, above the armature. The condenser is thus in close proximity to the contact-breaker, whether the magneto or the battery is in use—the importance of which will have already been recognised by our readers.

The general construction of both these members is not different from that usually employed, and as they are not intended to be dismantled by the motorist, it is unnecessary for us to give any detailed photographs or description of their interiors. Nor would such illustrations show anything more than a coil of wire in the one case, and a bundle of tin-foil and paper in the other.

On the outside of the case containing the induction coil, there are five terminals, and one of these, T^1 , is connected through the switch to the accumulators. Two others, T^1 and T^3 , are connected to the terminals, C^{12} and C^{13} ,

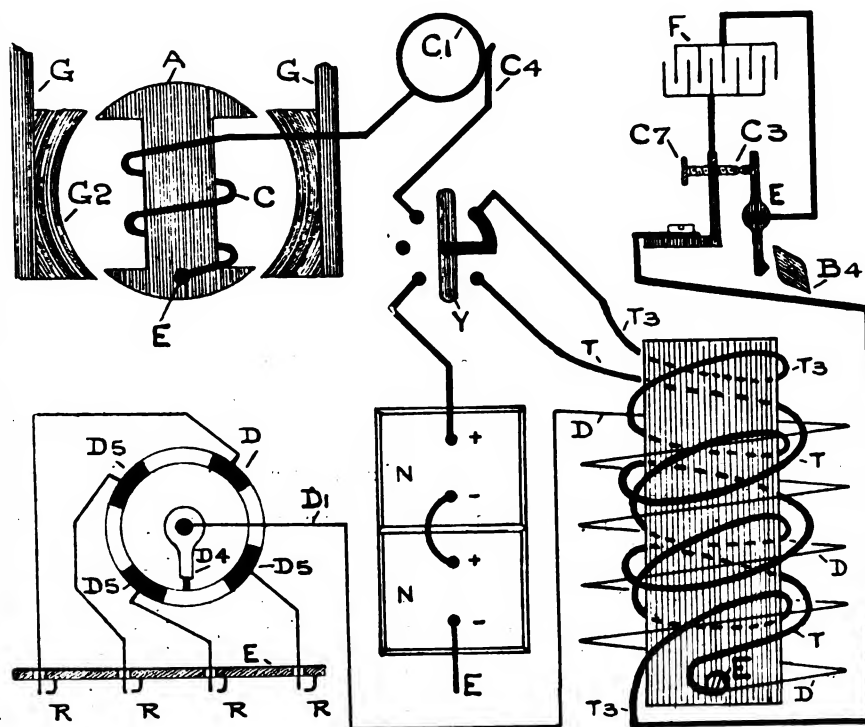


FIG. 6.—The Bassée-Michel High-Tension Magneto (1906 Type).—Diagram of the Internal Electrical Connections. The reference letters employed in connection with this illustration are the same as those used throughout, and this diagram has been prepared so that the system may be readily compared with others already described.

THE 1905 ARGYLL CARS.—PART IV.

(Concluded from page 1323.)

The "Govan" Change-Speed-Gear.

No other portion of an Argyll chassis differs more from the corresponding part of other cars than the change-speed mechanism, for the "Govan" gear is quite unlike that employed by any other maker. It is, however, similar to the orthodox pattern, up to a point, and, indeed, at first sight, little unusual might be noticed about it. Its particularly strong points are that no spur-wheels need be slid into mesh with one another while they are revolving, that either of the three forward speeds can be introduced without it being necessary to bring an intermediate speed into play when doing so, that both shafts are extremely short, that a direct-through drive is

a view from above, and to the right is a side view and an end view. Fig. 20 shows, on a larger scale, an important portion of the mechanism that introduces the second and third speeds.

The driving-shaft, K—which is connected with the clutch-shaft (J) by a flexible coupling—is rigid with the spur-wheel, K¹, and this wheel has jaw-clutch members formed on its inner face. The wheel, K¹, is always in mesh with the larger spur-wheel, K², on the lay-shaft, K³, and, thus, that shaft always revolves at a slow speed whenever the clutch is "in" and the engine running. Also rigid with the lay-shaft, K³, is the spur-wheel, K⁴, at the other end, and this wheel is at all times in mesh with the wheel, K⁵, which normally rides idly upon the

Fig. 18.—Three views of the "Govan" change-speed-gear, employed on all Argyll vehicles. On the left, the interior of the gear-box is seen from above, and the upper half (inverted) together with its bolts and yokes are arranged alongside. On the right, the complete mechanism is shown from the rear, and the front, respectively.

obtained on the top gear, and that the lay-shaft runs at a comparatively low speed.

Reference to Figs. 18, 19, and 20 will enable its construction and the arrangement of the operating mechanism to be followed. To the left, in Fig. 18, it is seen from above, with the upper half of the box removed and arranged alongside to show the interior. Here, too, will be noticed the four bolts and two yokes by which the two halves of the box can be firmly and quickly clamped together. To the right, in the same illustration, are views of the complete gear-box from either end. The four photographs reproduced in Fig. 19, not only show the gear-box fixed in place, but also give an excellent idea of the operating mechanism. To the left is a view from beneath, while, in the centre, is

"driven" shaft that carries the brake-drum, M³. The wheel, K⁴, always revolves at two-thirds the speed of the wheel, K¹, and it has jaw-clutch members on its inner face. So far as the second and third speeds are concerned, it only remains to explain that the "driven" shaft, at its forward end, takes a bearing inside the "driving" shaft, K, and that its centre has a square cross-section for the spur-wheel, M, and its jaw-clutch faces, to slide upon. This sliding member locks the driven-shaft either with the wheel, K¹—to give the direct third speed—or with the wheel, K⁴, to give the second speed, according as to whether it is slid forwards or backwards.

A square cross-section is also given to the lay-shaft, K³, and, upon it, rides the comparatively small spur-wheel, L¹, which can thus be brought into gear with the

Fig. 19.—Four views of the "Govan" change-speed-gear, complete with its operating mechanism. On the left, it is seen from beneath; in the centre, from above; and, on the right, it is shown from the "near" side, as well as from behind.

spur-wheel, M, to give the slow-speed first-gear; the wheel, M, when driven by the wheel L¹, revolves at one-third the speed of the wheel, K¹. Since this "speed" need never be introduced except for starting the car from rest, the wheels, L¹ and M, are slid into mesh with one another *before* they commence revolving. For giving the "reverse," the wide intermediate pinion, N², is provided inside the upper portion of the gear-box, and is carried on an eccentrically-mounted pin, N⁴, that can bring it into mesh with the wheels, L¹ and M, when the pin is rocked about its axis.

Both the sliding members of the change-speed-gear are controlled by the same hand-lever, L, although two entirely distinct connections are made between it and them for this purpose. The sliding member, L¹, is coupled up to the bell-crank, L², as seen in the illustrations, and this is, in turn, connected to the bottom of the lever, L, by the rod, L³. To operate this portion of the gear, the lever, L, is hinged by the pin, L⁴, to its rock-shaft, with the result that it can be moved outwardly (away from the side of the car) and does not then rotate the rock-shaft. This movement in the three-way quadrant merely slides the first-speed spur-wheel, L¹, into mesh with the wheel, M. At both ends, the rod, L³, has ball-joints to allow the hand-lever, L, to be moved forward or backward in its quadrant—movements which do not affect the first-speed mechanism.

For the second and third speeds, the sliding wheel, M (with its clutch jaws) is similarly controlled by a bell-crank lever, M¹, but this is engaged by the lever-arm, M², that projects down from—and is rigid with—the rock-shaft of the hand-lever, L. By moving the hand-lever forward, the wheel, M, is caused to engage with the wheel, K⁴, by virtue of their jaw-clutch members, and by moving it backward, that wheel engages in the same manner with the wheel, K¹—giving the third speed, as against the second speed in the former case. At the top of the lever, L, is a spring-catch handle, and this controls a locking-pin which engages with corresponding slots in the quadrant, and thus retains the lever in either of its working positions.

An important feature of the mechanism connecting the lever, L, with the second and third speed jaw-clutches has purposely escaped attention in the foregoing paragraph, since its action and utility will be more easily comprehended now that the functions and arrangement of the other parts have been explained. It is evident that the jaw-clutch members may at times fail to be exactly opposite one another when the lever, L, is moved, and that, therefore, they would be unable to engage with one another immediately. Inconvenience would arise—and possibly injury to the gear also—if the hand-lever had to be held until such time as the jaw-clutches could come into

Fig. 20.—An important portion of the "Govan" gear, as fitted to the Argyll Cars; this simple device not only saves the jaw-clutches from being injured by a careless driver, but enables the gear-lever to be moved into its second or third speed position at any time without waiting for the jaw-clutches to come into engagement.

operation, and, therefore, the very ingenious device shown on a larger scale in Fig. 20 is fitted. It is introduced—as seen on the left in Fig. 19—between the bell-crank, M^1 , and the sliding rod, M^4 , and permits the gear-lever, L , to be moved at any time from one position to another. A second bell-crank, M^3 , is pivoted to the same fulcrum-pin, M^4 , as the bell-crank, M^1 , but both ride independently of one another about the pin. The latter has, however, two small forgings, M^7 , pivoted to it at M^6 , and these forgings are forced together so that they grip one arm of the bell-crank, M^3 , between them. Two springs, M^8 —one above and the other below—serve to give the necessary pressure, and it is these springs that allow the bell-crank, M^1 , to be moved by the hand-lever, and permit the other bell-crank, M^3 , to delay in following suit until later. In Fig. 20, in which this mechanism is seen from below, the lower spring has been partly removed in order to show the forgings, M^7 , and only small portions of the upper spring are visible beneath those forgings.

Little explanation is needed concerning the reversing gear, in view of the very clear manner in which the entire mechanism is shown in our illustrations. It is operated by the hand-lever, N , which is coupled up to the eccentric pin, N^4 , by the rod, N^1 , and the bell-crank, N^2 . The hand-lever itself is solid with a short projecting arm, N^3 , (Fig. 19, left hand photo), and it is this arm that engages with the bell-crank, N^2 .

Concluding Remarks.

Such then are the more important details of construction adopted in this year's Argyll cars, concerning the general excellence of which we have already also spoken. Certain other parts, such as the foot-brake, the ratchet-sprag, and the propeller-shaft, have not been dealt with minutely because they do not differ materially from those employed on other well-known makes of chassis, and because their nature is well demonstrated in one or other of our numerous illustrations. It is sufficient, therefore, to say that each of them is quite in keeping with the

character of the chassis as a whole, and that they possess the same simplicity of design and suitability for the work they have to perform, as do those portions of the mechanism to which we have given our chief attention in this somewhat lengthy article.

Table of Reference Letters for the Argyll Illustrations.

<i>Front Axle.</i>		G^7 Operating pin.
A Stay-rod beneath front axle.		G^8 Brake shoes.
A^1 Steering-head brackets.		G^9 Fulcrum-pin for shoes.
A^2 Anti-friction thrust-collar.		
A^3 Fixed pin for steering-head.		<i>Clutch.</i>
A^4 Ball thrust-collar.		H Fly-wheel.
<i>Steering Gear.</i>		H^1 Driving pins.
B Steering-pillar shaft.		H^2 Spring-adjusting pins.
B^1 Triple worm on same.		H^3 Driving discs.
B^2 Travelling nut.		H^4 Clutch-springs.
B^3 Forked lever-arm.		H^5 Spring-casing.
B^4 Fulcrum-pin for same.		H^6 Operating spider.
B^5 External lever-arm.		H^7 Oil-retaining cover.
<i>"Timing" and "Throttle" Levers.</i>		H^8 Ball thrust-bearing.
C Sleeve for lever, C^1 .		H^9 Clutch-fork mechanism.
C^1 Timing lever.		J Driving shaft.
C^2 Lever-arm for same.		J^1 Casting carrying driven discs.
C^3 Throttle lever.		J^2 Driven discs.
C^4 Lever-arm for same.		J^3 Bracket on frame.
C^5 Stationary quadrant.		J^4 Brake flange.
C^6 Sockets for joints.		J^5 Stay for J^3 .
C^7 Balls for joints.		J^6 Clutch-pedal.
C^8 Lock-screws for C^3 .		
<i>Live Axle.</i>		<i>Change-Speed-Gear.</i>
D Casing enclosing bevel-gear.		K Driving shaft.
D^1 Steel tubes.		K^1 Spur-wheel fixed to K .
D^2 Spring-brackets.		K^2 Driven wheel on lay-shaft.
D^3 Stay-rods.		K^3 Driving-wheel on lay-shaft.
D^4 Radius-rods.		K^4 Wheel riding on driven shaft.
D^5 Differential-gear.		L Change-speed lever.
D^6 Axle shafts.		L^1 Sliding wheel on lay-shaft.
D^7 Bevel-wheel.		L^2 Bell-crank for L^1 .
D^8 Hubs of road-wheels.		L^3 Rod operating L^2 .
D^9 Roller bearings.		L^4 Fulcrum-pin for L .
D^{10} Ball thrust-bearings.		M Sliding wheel on driven shaft.
D^{11} Bevel pinion.		M^1 Bell-crank for M .
D^{12} Shaft for same.		M^2 Lever operating M^1 .
<i>Hub Brakes.</i>		M^3 Intermediate bell-crank.
G Hand lever.		M^4 Sliding rod for M .
G^1 Rock-shaft for same.		M^5 Fulcrum-pin for M^1 and M^2 .
G^2 Bell-crank levers.		M^6 Pins for M^7 .
G^3 Compensating rod.		M^7 Pivoted safety levers.
G^4 Operating rods.		M^8 Springs for M^7 .
G^5 Toggle mechanism.		M^9 Brake-drum on driven shaft.
G^6 Dust cover.		N Reversing lever.
		N^1 Connecting-rod for N .
		N^2 Intermediate bell-crank.
		N^3 Lever-arm on N^1 .
		N^4 Rock-shaft for N^1 .
		N^5 Reversing pinion.

AERONAUTICS.

Lebaudy Airship Triumphs.—The Lebaudy airship continues to give demonstrations of its serviceability for military purposes, and on the 24th inst. it took up the Minister of War, M. Berteaux, to survey the defences in the neighbourhood of Toul. The Minister of War was received by Messrs. Julliot and Paul and Pierre Lebaudy on Monday last at Toul, and the whole staff of the Aeronautical Department were in attendance. The airship was brought out from the shed belonging to the 39th Regiment of Artillery, and after the formal introduction of its owners and engineers to M. Berteaux, the Minister expressed a desire to make a tour with it, in spite of the north-east wind, which was blowing at some fifteen miles an hour. M. Berteaux entered the car accompanied by Commandant Gossard, Commandant Bouttiaux, Capt. Voyer, head of the Aeronautical Department, M. Georges Juchmès and M. A. Rey. Altogether the airship took up six passengers and 300 kilos. of ballast, together with sacks of sand of 10 kilos. intended to represent the weight of possible projectiles. The airship carried on evolutions from three o'clock till half-past three, circling over the forts and works of Toul. The Minister of War satisfied himself of the possibility of dropping bombs with precision on indicated points, and was most enthusiastic in his praise of the efficiency

of the manoeuvres. The entry to the shed in which the airship is accommodated was made without difficulty at the end of the return journey. This official recognition of the military value of the Lebaudy airship has naturally attracted attention to its designer, M. Henry Julliot, who deserves the greater part of the credit for its successful performances. He was for a considerable time employed in Messrs. Lebaudy's sugar refineries, and it is only in recent years that M. Julliot has taken up the engineering and construction of airships.

THE great airship of Count Zeppelin, on the lake of Constance, which has been rebuilt and made a trial run, as we chronicled some time ago, is now again ready for experiment, and at present accommodated in the great shed which floats on the surface of the lake. Considerable alterations have been made in this airship from the machine which originally (before the days of Mons. Santos Dumont) performed evolutions above the lake. The present gas-vessel is 400 feet by 40 feet in diameter, and is divided into 20 gas-tight compartments, the whole being trussed and held together by an interior framework of aluminium rods, rings and wires, the exterior covering being of pegamoid, which has shown itself singularly unaffected by adverse atmospheric conditions.

THE 1906 OLDSMOBILES—SOME RADICAL INNOVATIONS.

The 20-h.p. Oldsmobile Car, which is the larger of the two 1906 models having vertical engines and live-axle transmission mechanisms. The 20-h.p. Motor has four cylinders.

OLDSMOBILES so instinctively suggest an extremely popular type of light car that is sold at an extremely low figure, is the essence of simplicity to drive, and has deservedly earned a world-wide reputation in its own particular field, that it will doubtless take time for the average motorist to recognise, as Oldsmobiles, the new 12-h.p. and 20-h.p. models which are now being introduced by the enterprising American builders of these cars. These additional types, which will be shown to the British public for the first time by Messrs. Jarrott and Letts at Olympia this month, are designed on essentially European lines, and differ, in fact, only in constructional details from ordinary orthodox cars of the live-axle type. Naturally, however, they are not in any way intended to replace the earlier, and comparatively low-powered, "run-about" pattern, which—on the contrary—has once more been greatly improved in many important respects.

The Powerful New Models.

The two larger models are similar in design, both

having vertical engines beneath the bonnet in front, main clutches of the cone variety, change-speed-gears of the sliding spur-wheel pattern—giving three forward speeds and a "reverse"—and propeller-shafts to transmit the power to their driving axles. In both, moreover, the specially-constructed channel-steel frame enables the engine to be drawn out direct in front, if at any time it has to be removed, and there is a sheet metal shield fixed to the frame beneath the engine and the gear-box.

The 12-h.p. engine has, however, a pair of 5 in. bore by 5 in. stroke cylinders, whereas the 20-h.p. model has four cylinders of $4\frac{1}{4}$ in. bore by $4\frac{3}{4}$ in. stroke.

Our illustrations give a good general idea of the appearance of these vehicles, but it should be specially noted that the standard 12-h.p. has a considerably longer wheel-base than the 2-seater shown in the photograph, and that it is normally provided with a detachable tonneau body. Both chassis are designed to take side-entrance bodies; the larger car comfortably accommodates five persons.

View of a twin-cylinder 12-h.p. Oldsmobile Car, similar to the standard new model, but having a shorter chassis; usually this type of vehicle has a detachable tonneau body to seat four persons.

Amongst other interesting features should be mentioned the lubricating system adopted on these new cars, for the oil is forced by a gear-driven pump to all the bearings, including those of the transmission-gear as well as the engine. The circulating pump for the cooling water is also positively driven by gear-wheels, the levers controlling the engine are mounted above the steering wheel, and the semi-elliptic side springs are all sufficiently long and flexible to ensure comfortable travelling.

The Improved "Run-about."

Outwardly, the 7-h.p. "run-about" resembles those of this year, but many parts of the vehicle and its mechanism have undergone considerable modification as the result of the further far-reaching experience of the past year; good as any such machines may be, it is but natural that further improvements can continue to be made. The brakes, in particular, have received attention, with the result that the old differential-brake has been replaced by one of an entirely different character, and that the design of the external hub-brakes has been modified; the brake-bands, as also those which form a part of the change-speed mechanism, are lined with camel-hair belting. In connection with the axles,

changes have been made, the front-axle being stronger, and the back-axle having radius-rods that render it impossible for the driving-chain to come in contact with the axle-casing. The springs, too, are considerably more flexible, and the live-axle has easily-replaceable bushes for the "Hyatt" roller-bearings with which it is fitted.

The engine has also been modified in some respects, notably in means for facilitating starting in winter, and in having an automatic lubrication system. The connecting-rod no longer has a hinged cap, the piston now has an additional ring at the front end, the valves and valve-gear are altogether stronger than formerly, and a very much larger pump is used for the cooling water. The pump is, by the way, driven by a silent chain from the crank-shaft.

We have not as yet been able to inspect these new Oldsmobiles personally, but it is evident from the foregoing information that the "run-about" is bound to appeal even more forcibly than before to those requiring a really satisfactory and cheap little vehicle, and it almost goes without saying that the larger models will appeal to a large number of purchasers; naturally they, also, are being turned out in such a manner—on a very large scale—as to be sold at a low price.



THE 1906, 22-28-H.P., CROSSLEY CAR.

* Fig. 1.—The new 22-28-h.p. Crossley Chassis. View from the "near" side, showing the manner in which the wheel-base has been lengthened, and the general disposition of the entire mechanism.

FOLLOWING up the general information which we gave last week concerning the 1906 Crossley models, we are now able to reproduce three photographs of the new 22-28-h.p. chassis. The first shows it complete from the near side, the second is a view from the rear, and the third gives an excellent idea of the new gear-box. We are also able to supplement what has already been said, with some further particulars of this well-designed and good all-round vehicle.

A noticeable feature is that very long spring-hangers are fixed to the frame at the rear, with the object of bringing the driving wheels well back,

although the frame itself is not lengthened. The front wheels, also, are carried considerably forward of the engine, and thus the full advantages of a long (10 ft.) wheel-base are secured. In outward appearance, the engine, with its cylinders in pairs, its valves on opposite sides, and its low-tension magneto-ignition, remains but little altered, although, as pointed out last week, it has undergone many important improvements of a minor character. The lubricating system is fed by pressure from the cylindrical tank, placed outside the frame, as seen in Fig. 1, and a simple sight-feed lubricator on the dashboard distributes the oil to the engine.

13th). Between the clutch and the gear-box, the longitudinal shaft has universal joints at both ends. Usually, neither the foot-brake nor the hub-brakes are interconnected with the clutch, but provision is made for connecting the latter with it when required. The hub-brakes, which are compensated by a steel cable, have the shoes fixed to a spring-steel expanding member, the ends of which are forced apart by small toggle-links; the spring-steel draws the shoes clear of the drum, when the brake is "off."

Considerable attention has been paid to the steering-gear, both to ensure strength and to render it smooth and easy in action. The steering-heads, which are of the internal type, have ball-bearings above and beneath the axle, and there is also a ball-thrust to take the weight of the vehicle. Another point is that the cross-rod, connecting the two steering-heads together, rests down upon the ball-sockets on the steering-arms, instead of being held up by them; this rod is, moreover, quite straight, and passes across behind the axle. A special form of adjustment is also provided for taking up all back-lash in the long rod that connects the steering-gear with the axle-mechanism.

As will be realised, the designers and builders of the Crossley cars have taken full advantage of the great progress made in the automobile and engineering worlds during the past year, and have applied their study of the many questions involved, both to their new 40-h.p. model, and to the further improvement of the 22-28-h.p. car as well.

Fig. 2.—View of the 22-28-h.p. Crossley Chassis, from the rear. In this illustration is seen the new Gear-box, the strong pressed-steel Frame and the powerful metal-to-metal Brake on the Countershaft.

Perhaps the greatest change will be recognised in the gear-box and in the operating mechanism, for this now follows closely on the well-known Mercedes lines, and is controlled in a similar manner. The gear-box itself is fixed direct to the strongly-constructed pressed-steel frame, and its sliding members are connected to the three rods that pass forward from it. The simple mechanism by which the change-speed-lever is brought into engagement with either of these sliding-rods, is enclosed in a dust-proof casing, and the quadrant in which the lever is moved forwards or backwards, to introduce either required speed, has three corresponding slots to receive it. Fig. 3 not only shows the interior of the gear-box, with the ball-bearings on all three shafts, but also the powerful metal-to-metal foot-brake on the differential countershaft. Comparatively little alteration has been made to the expanding clutch since early last year, when a very fully illustrated description of the 1905 chassis appeared in our columns (Jan. 30th, Feb. 6th and

Fig. 3.—The 1906 Crossley Gear-box, with the upper half removed to show the entire interior mechanism. In this view, the D.W.M. ball-bearings, the strong gear-wheels, and the sliding rods that introduce either of the four forward, or the "reverse" speeds, are particularly prominent.

THE "LLOYD" CHANGE-SPEED GEAR.

The "Lloyd" Gear for Petrol Cars.—View showing this novel form of mechanism, in which the "gear-wheels" have rollers instead of teeth; it is fixed to the pressed-steel frame of a chassis.

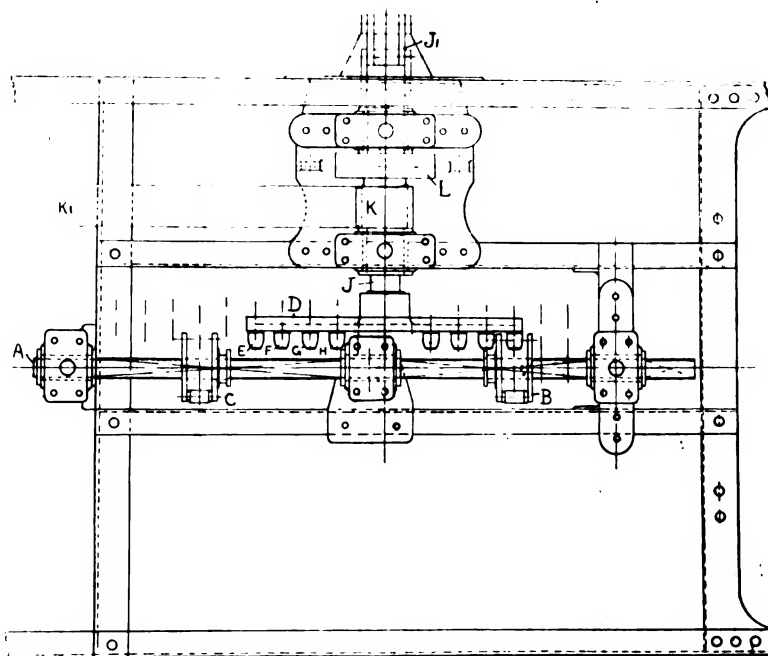
THE type of gear mechanism which the Quadrant Cycle Company are introducing for use on motor cars of all kinds is quite unlike that now fitted to any vehicle with which we are acquainted. It is not, however, an altogether new invention, and is, in fact, that which has been employed on the chainless bicycles made by this firm—one of which has, we learn, been ridden a distance of over 60,000 miles, and is still in good running order.

For automobile work, the "Lloyd" gear is constructed as shown in our illustrations, which represent it fixed in place to the pressed-steel frame of a chassis. The longitudinal shaft, A, is mounted so that it can be coupled up direct to an engine of any ordinary make, and is, for this purpose, placed in line with the crank-shaft of the engine (when fitted). Between its bearings, the shaft, A, has a square cross-section, and over these portions the peculiarly formed pinions, B and C, are free to slide; they can be moved backwards or forwards, simultaneously, by the change-speed lever, *after* the clutch-pedal—to which reference is made presently—has been depressed. The pinions consist of cages, each carrying six specially-shaped rollers—that act as teeth; the pinion, B, serves to give the four speeds forward, and the other pinion, C, gives a slow-speed "reverse."

The shaft, J, to which the power is transmitted from the shaft, A, lies transversely, and is provided at its inner end with the large driving disc, D. Projecting from the face of the disc are four concentric sets of rollers, E, F, G, and H, with either set of which the pinion, B, can engage. Each set of rollers thus forms a kind of

bevel-wheel, and it is they that give the four different gear-ratios. Special emphasis is laid on the facts that the hardened-steel rollers only present a mathematical "point" contact to one another—since they engage crosswise—and that, being free to revolve, they do not rub against one another.

For changing from one speed to another, and also for giving the necessary clutch action, the shaft, J, is fitted



Plan of the "Lloyd" Gear, arranged to give four forward speeds and a "reverse" between the engine-driven shaft, A, and the shaft, J—from which the power is transmitted to the live axle by a single chain.

so as to be free to slide lengthwise in its bearings, and, at its outer end, it is provided with a toggle-mechanism, J, that imparts this movement to it from the clutch-pedal. When drawn away from the shaft, A, the disc, C, ceases to engage with either of the pinions, B or C, and then these wheels can be moved along their shaft to a different position. The 1st, 2nd, 3rd, and 4th speeds, forward, result from bringing the pinion, B, into mesh with the rollers, E, F, G, and H, respectively, and the "reverse" speed is obtained when the pinion, C,

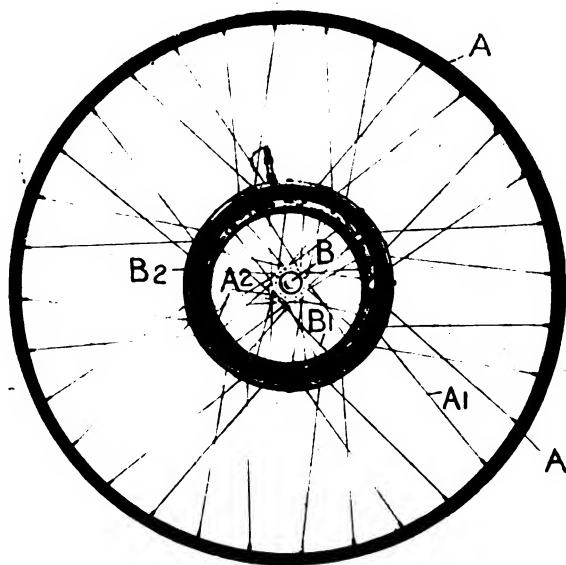
meshes with the outer set of rollers, E; there is a free position in which both pinions are entirely clear of the disc, D. In this form of the "Lloyd" gear, the power is transmitted by a single, "silent" chain, K¹, from the shaft, J, direct to the "live" rear-axle of the car. The sprocket, K, and the drum, L (for the foot-brake), ride on a square portion of the shaft, J, and do not therefore slide sideways with the shaft. Amongst the claims made for this type of change-speed-gear are efficiency, silence, and durability.



THE PNEUMATIC SUSPENSION WHEEL.

ALTHOUGH not literally a "spring" wheel, the "pneumatic suspension wheel" introduced by the Pneumatic Suspension Wheel Co., is nevertheless among that category of devices which are designed for the purpose of affording a resilient medium—if not of an unpuncturable material—at least in an unpuncturable place within the wheel. The principle of the "pneumatic suspension wheel" is that of arranging a pneumatic tyre around the hub, where it is in an isolated and easily-protected position, and where it can, therefore, be used in a less highly inflated condition than would be desirable in a pneumatic running in contact with the road.

to their respective rings. Between these two rings, A² and B², is a canvas-covered air-tube, C, which is inflated through the valve, C¹, in the same way as an ordinary pneumatic tyre. This air-tube tends to keep the two members, A² and B², concentric with one another when the wheel is in equilibrium, and to absorb the road shocks when the wheel is in use. The weight of the machine, which is carried by the hub, B, is transmitted by the spokes, B¹, to the upper part of the ring, B², which in turn transmits it to the inner ring, A², through the air-tube, C. The spokes are thus always in tension, as in an ordinary wire wheel. The air-tube, C, is not endless, like the inner tube of



The Pneumatic Suspension Wheel.—View of the wheel complete, but without the tyre, and view of the "pneumatic suspension" device, on the right. The air-tube, C, is not endless, but forms a sealed tube, which can be inflated at C¹, like an ordinary pneumatic tyre, and can be withdrawn—when deflated—from its position without dismantling the wheel.

The illustration shows, on the left, a motor bicycle wheel fitted with this device, but the tyre proper—which may be pneumatic or otherwise as desired—is not in place. On the right, is a larger view of the "pneumatic suspension," which shows the method of detaching the air-tube.

The spokes, A¹, of the rim, A, are connected at their inner ends to the ring, A², which, it will be noticed, is nearer the hub than the ring, B², to which the spokes, B¹, of the hub, B, are attached. The spokes, B¹, pass through slots in the ring, A², and the spokes, A¹, pass outside the ring, B², so as to enable them to be connected

an ordinary pneumatic, but is made in one length with sealed ends in such a way that it can, when deflated, be withdrawn from the rings, A² and B², through a slot cut in the ring, B², for that purpose. Should this tube become damaged through any cause, a new one can thus be easily inserted without dismantling the wheel.

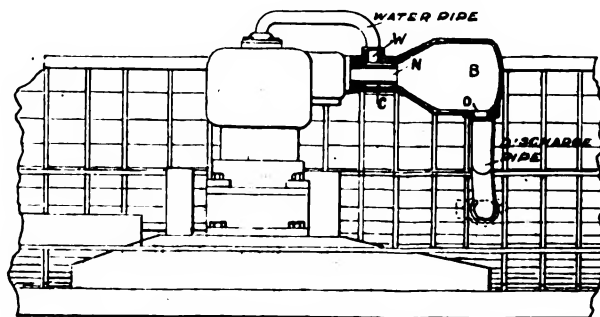
Reference Letters.

A Rim.	B ¹ Spokes attached to B.
A ¹ Spokes attached to A.	B ² Ring attached to B ¹ .
A ² Inner ring attached to A ¹ .	C Air tube.
B Hub.	C ¹ Inflating valve.

A SILENCING CONDENSER FOR MARINE MOTORS.

WITH the three-fold object of scavenging the working cylinders of marine petrol motors, and of cooling and silencing the exhaust gases, the apparatus shown in our illustrations has recently been put on the market by Messrs. Rankin, Kennedy, and Sons. Into the chamber, B, which is slightly larger than the engine cylinder, the

nozzle. The gases and the water mix with one another, the former quickly giving up their heat to the latter—forming, it is claimed, an appreciably high partial vacuum—and both are finally led away, cool and silent, by the discharge pipe, O. Usually it is convenient to employ the cooling water passing from the cylinder-jacket for this purpose, but the necessary water may be drawn up direct by the apparatus itself—without the aid of a pump—if desired. The chamber, B, is found to



View of the Rankin-Kennedy Marine Silencer, fitted to a single-cylinder petrol engine.

Side elevation (part sectional) showing the Kennedy Silencer fitted, in a boat, to a petrol engine.

exhaust gases are led by the short pipe, E, and water is also admitted through the pipe, W. The gases issue through the nozzle, N, and the water is drawn as a spray through the contracted throat around the mouth of the

keep quite cool in practice, and, apparently, the power of the engine is increased, rather than decreased (as with most silencers) by the use of this simple apparatus.

1906 Minerva Cars.—The most important innovation on the new Minerva cars, which will be shown at Olympia, is the adoption of a live axle instead of the chain drive hitherto employed. Other important new features include a pressed steel frame, ball bearings in the gear-box, two ignition systems, and thermosyphon cooling. The chassis will be made in two models, viz., 16-h.p. and 22-h.p., and both will be fitted with four-cylinder engines.

Olympia Motor Show.—At this show, which opens on Friday, November 17th and remains open till the following Saturday, November 25th, there will be over 300 exhibitors, as compared with 248 at the last exhibition. By the enormous rush of applicants for space, the policy of holding the show before the Paris Automobile Salon in December has been fully vindicated, and the fact that the best Continental firms will be represented by their 1906 models in the exhibition must be a source of considerable satisfaction to the Society of Motor Manufacturers and Traders, who have brought their exhibitions up to such a splendid pitch of success. Continental firms have long since recognised that Great Britain is their best market, and whatever their patriotic feelings may suggest, their commercial instincts tell them plainly that they cannot afford to wait for the British customers to go to Paris, under the conditions of the Olympia Exhibition being held first. Fifty-one foreign firms are exhibiting, either personally or through their agents. Over 100 firms will show pleasure motor cars, 35 commercial vehicles, and 26 motor boats. In addition, there will be an enormous gathering of specimen carriage work, tyres, components, accessories, and machinery. The 10,000 feet additional space provided in the annexe, has enabled the Motor Boat Section to

be specially expanded, and it will probably form one of the most interesting features of the Exhibition. The scheme of lighting and decoration has been considerably extended, and will give even more brilliant effects than at the Show held in the earlier part of the year. Lieut. Godfrey's Orchestra will perform each afternoon and evening. Standing room for over 100 cars belonging to visitors is provided at the Hammersmith Road entrance to the Exhibition, and trial runs of exhibitors' cars can consequently be conveniently arranged. If any additional promise of success were needed, the fact that the King has for the first time accorded his patronage to the Exhibition, should make that success doubly assured.

The Society of Motor Omnibus Engineers, at the invitation of the exhibition organisers, will formally visit the Exhibition on Wednesday afternoon, November 22nd.

Royal Commission on Motor Cars.—At the seventh sitting on October 26th there were present Viscount Selby (chairman), the Marquis of Winchester, Sir D. Harrel, Sir W. B. Forwood, Mr. Monro, and Captain Bigham (secretary). The examination of Mr. Butterworth (representing the Highways Protection League) was concluded, and the following witnesses were heard: Mr. Alfred Mills, Secretary to the Federation of Associated London Cab Proprietors; Major A. F. Poulton, Chief Constable of Berkshire; and Major H. L. Lang, Chief Constable of Sussex. On Tuesday the following witnesses were examined:—Mr. Henry Hall, of Alphington (Exeter); Mr. T. H. Ryland, hon. secretary of the Midland Automobile Club; and the Earl of Shrewsbury, president of the Automobile Mutual Protection Association. The Commission met again on Wednesday.

CIRCLING THE GLOBE ONCE MORE.

"ENCIRCLING THE WORLD" BY MOTOR CAR.—The views given above depict some of the experiences of Mr. Glidden in Australia. 1, is a bad bit of road which he encountered, 2, is the southernmost road in the world, in New Zealand; 3, is a typical road and team waggon in Australia; and 4, is a quaint tonneau load of Australian children aborigines.

MR. C. J. GLIDDEN is again in London. The Ulysses of the motor car "cannot rest from travel," and he is going round the world once more to see "the cities of many men," countries and kingdoms. Without being exactly tired of Europe, he is this time at any rate going to make a start in Asia, having been favourably impressed from the accounts he has read, and all that he can learn from conversation with those who have been there, of the splendour of the Indian roads. He will proceed straight with his trusty Napier from London to Bombay in the *Mooltan* on November 10th. The Napier car, which has accomplished 20,000 of the 25,100 miles which go to Mr. Glidden's present round-the-world record, is still to all intents and purposes intact. The engine is the same, the gear-box is the same, the transmission is the same, and all its parts are the same. All that has been done to it, with a view to the present tour, is a thorough re-upholstering, painting, and small adjustments.

From Bombay, Mr. Glidden, who will, as usual, be accompanied by Mrs. Glidden, intends to proceed as far north in India as the roads will carry him, and confidently reckons on reaching Rawal Pindi and Peshawur. Thence Mr. Glidden intends to circle round through Cawnpore to Calcutta, from which point he is not quite certain whether he will descend the Indian Peninsula through Madras and Pondicherry, and so

take ship to Ceylon, or whether he will proceed by the roads of Burma, which, he is informed, are now admirable, through Mandalay to Rangoon, from there through Siam and the Malay States to Singapore, and then possibly back to Ceylon. Afterwards he intends motoring through the Philippines, a part of China and Japan.

Mr. Glidden is an enthusiastic devotee of the automobile as a means of travel. No method of travel is, in his opinion, so enjoyable, as it enables the traveller to see the country as he passes through it with an accuracy of detail of which railway travellers have no conception. How true this is, our readers will remember from the many splendid views of out-of-the-way parts of the world which Mr. Glidden has been good enough to send us from time to time during his past travels and which we have reproduced in the pages of the Journal. We give a few more of these now, obtained by Mr. Glidden on his last tour, as they most admirably illustrate the intimate contact into which the automobile brings the traveller both with the country and the people that lie along his route.

Mr. Glidden is busy mapping out the details of his course, and has an elaborate mass of correspondence from all the principal towns and districts he intends to travel through. He calculates that he will cover some

5,000 miles in India and from 1,000 to 2,000 miles in Ceylon, making altogether a tour of some 8,000 miles, which, when completed, will bring his touring record up to the extraordinary total of 33,000 miles. In out-of-the-way districts Mr. Glidden has had many quaint experiences with the language difficulty, but now he invariably, where necessary, takes with him an interpreter,

and the arrangements for relays of these necessary functionaries in out-of-the-way places is no small part of the successful "advance" management of the tour. We wish Mr. Glidden the best of good fortune and enjoyment on his long journey, and trust that he may still further popularise the automobile, and introduce it into districts where it has hitherto, at any rate, seldom been seen.



"JUSTICES' JUSTICE" AND "HEDGEHOG" ITEMS.

The "Handover" Colonel on His Defence.—We conclude that some of the remarks that his proceedings have evoked have ultimately penetrated the hide of that pachydermatous dispenser of "justice" who usually presides over the "legalised brigandage" of a certain notorious Bench. He has now publicly stated that he has invariably found the police to give their evidence in a "straightforward manner." We do not think that has ever been disputed. Police evidence comes out invariably with the straightforwardness of an oft-repeated lesson. He further added, in a particular case, that no notice could be taken of what the defendant's solicitor maintained, without admitting that the police had committed wilful perjury. Recoiling from such a dreadful suggestion, the magistrates of course found the unfortunate defendant guilty. But why it should be more unlikely for policemen, with every interest at stake, to commit this heinous offence, than for the innumerable defendants, usually men of good position and antecedents, is to some extent a mystery. The assumption, however, enables the "Handover" Bench to rake in fines *ad libitum*, and without compunction.

SUPERINTENDENT BOWLES of the local police thanked the Chairman of the Bench for the profound remarks referred to above, and added that as the police had received no complaints recently they had not been on motor (trapping) duty around Andover lately. The word in brackets is added by ourselves and we may also add that this confession of the Superintendent must undoubtedly be regarded as a testimonial to the efficacious manner in which the Automobile Association, since they have turned their attention to the Andover district, have been successful in restraining motorists from innocently exceeding the speed limit. Superintendent Bowles further added that the police would now be put back to their ordinary duties. A notable exodus of burglars and other cracksmen has accordingly taken place from the district, and "jemmies" can now be purchased in and near Andover at a moderate price. And so there is "peace" at Andover.

WE hope that similar satisfactory reports will soon be furnished by other superintendents of police in the districts where it has been the custom to concentrate the whole available police force on the roads, and to denude the country generally of police protection, for the sole purpose of extracting fines from automobilists.

THE general result will, we trust, be to accord a favourable response to the prayer of a gentleman living at Oatlands Park, near Weybridge—Mr. F. M. Frames—who has written to the Chief Constable of Surrey pointing out that in his district burglaries are now

being committed with practical impunity, owing to the whole available police force of the county being concentrated on and exhausted by attention to motor car traps. It is quite obvious that a policeman who has been for the whole day ensconced, we will not say in the classic pigstye, but in one of the umbrageous retreats on the Ripley Road to which we refer elsewhere, is hardly likely to be very alert during the night watches.

A SIMILAR wail comes to us from Cobham, a resident of that townlet, Mr. F. P. Armstrong, having remarked with much trepidation that the meagre police force of Cobham, Esher, and Ripley, regularly every day desert the villages which they are supposed to protect, and march out to deserted portions of the main Portsmouth Road, where they spend hours, and even days, in trapping or attempting to trap motorists. Mr. Armstrong of Cobham very naturally enquires, "What is the good of paying a police rate which is not decreased in any degree by the fines levied on motorists, while at the same time in the Walton and Cobham district burglaries have become regular 'fixtures'?"

Prejudice Against Motors.—In the Divisional Court, on Monday, before the Lord Chief Justice, Mr. Justice Wills, and Mr. Justice Darling, Mr. Huntley Jenkins (instructed by Mr. Staplee Firth) moved, on behalf of Sidney Owen Heywood, of Wickham Market, Suffolk, for a *rule nisi* for a writ of *certiorari* to issue, calling upon the Justices of the Borough of Bedford to show cause why a conviction by such Justices, made on or about the 11th July last, convicting Mr. Heywood of driving a motor car at a speed dangerous to the public on the Embankment there, should not be quashed, on the ground of bias and prejudice against motor cars, it being alleged that the Mayor of Bedford, H. BurrIDGE, Esq., had witnessed the alleged occurrence, had given the information which led to the proceedings against Mr. Heywood, had sat on the Bench when the case was tried, and had also retired with the Justices, but had come into Court before them, and stated that he would not take any part in the voting or decision of the Bench. The Court granted the rule asked for.

More Highwayism.—A Mr. J. H. Jackson was recently riding a motor cycle along the extremely indifferent road that stretches between Bishop's Stortford and Harlow. Owing to the condition of the surface of the road, he was going along at a leisurely 9 miles an hour or so, and police traps were accordingly far from his mind, conscious of its own rectitude. This, however, saved him not, for unwittingly he traversed one of these arrangements, and as he approached the end of it, without the slightest warning two policemen suddenly

jumped from a bushy hedge a yard or two in front of his nose, and shouted in loud tones to him to "stop." Doubtless, Mr. Jackson's nerves were upset by this sudden attack, and he may perhaps have concluded that he had dropped from the twentieth century back to the eighteenth, for this was the sort of summons that a lonely traveller was then accustomed to hear on Hounslow Heath or Shooter's Hill. Whatever the cause, he clapped on his brakes with such force that himself and his bicycle turned a complete somersault, the bicycle coming over as they sometimes do, and hitting him while he lay prone beneath it. When he had picked himself up in a seriously damaged condition, his left arm being badly injured, and his motor cycle a wreck, he was informed by the police, who made not the slightest effort to assist him in getting upon his legs again, that they had stopped him for the purpose of inspecting his licence. Mr. Jackson, whose arm, it is said, will be useless for a month, has been subsequently informed by the Chief Constable of Hertfordshire that the officers had a perfect right to stop him, though he expressed regret at the accident. Well, on this point, we beg to differ from the Chief Constable. A policeman has not a right to stop a motorist who is proceeding along the road, unless an offence can be alleged against him, and we think Mr. Jackson, who, by the by, is a clerk at the West Ham Police Court, would have a very good ground of action against the police, as their unwarranted interference, and particularly the manner in which it was effected, resulted in a serious accident.

But what a scandal the whole thing is! The inner meaning of the situation is so obvious. Here are policemen infuriated by a motor cyclist proceeding through their trap at a mere nine miles an hour, and making an excuse of a desire to see his licence, they jump out upon him so as to cause him serious injury. If the British public will continue to stand this sort of thing, it will stand anything.

Vindictive Persecution.—We referred last week to the tyrannical action of the Steyning Bench of Magistrates, in issuing a warrant for the arrest of Mr. John T. Day, who failed to answer a summons before them some short time back. It appears that the case is even more arbitrary and unconscionably tyrannical than we had supposed. Naturally, under the circumstances, we assumed, though we did not state, that the defendant had

neither put in an appearance nor been represented before the Bench in any way. But on the contrary, it now appears that he had instructed his solicitor to write to the Bench pleading guilty to the offence, and excusing his client's non-attendance. Under such circumstances, Benches of magistrates have been almost invariably willing to convict, and impose a moderate fine in the absence of the alleged delinquent, and this unusual action of the Steyning Dogberrys in this respect can be only attributed to pure spite due to a previous successful appeal from their decisions to Quarter Sessions, as we suggested last week. We are not at all certain as to whether, in the case of a defendant pleading guilty by letter, magistrates have the power to take this action, but whether they have or whether they have not, their doing so is a petty and tyrannical abuse of the powers with which a Constitution, accustomed to the reasonable exercise of functions on the part of its servants, has entrusted them.

Illegal Decisions.—A case of somewhat unusual interest was brought before the Hampshire Quarter Sessions, at Winchester, last week. Mr. Henry Welch-Thornton, of Beau Peare, Basingstoke, himself a magistrate, appealed against a conviction by the Andover Bench for having driven at "a speed dangerous to the public, &c.," on July 24th last. This was one of the cases from the notorious police trap near Hurstbourne Priors, in regard to which Lord Portsmouth erected the notice to which we referred at the time. It is satisfactory to learn that the appeal of the magistrate against the unwarranted decision of his brother magistrates was successful, and that the Court held there was no proof of danger to the public, having regard to the circumstances of the case.

THE King's Bench Division for Ireland last week (Lord Chief Justice, Mr. Justice Madden, and Mr. Justice Wright) granted to Mr. Samuel T. Robinson a conditional order quashing a Bray Petty Sessions decision under which (for not stopping his motor) the applicant was fined £3, with the option of two months' imprisonment, and the conviction endorsed. The grounds of the application were, (1) that there had been no offence committed under any act or bye-law; and (2) that there was no authority under the Motor Car Act to imprison for a first offence.



Speed Indicators and Motor Cars.—Following up the remarks that have already been made in our columns concerning the great utility of a speed indicator on a car, and the difficulty of correctly estimating speed without one, we are now able to give one or two further interesting points on the subject from some private tests which we have been making. Speaking from our own experience, which we find corresponds with that of several other users, the difference between "apparent" speed and "actual" speed is very marked, both when the car is travelling very slowly, and when it is running very fast. Below about 15 m.p.h. one is apt to make far too low an estimate, and conversely above about 25 m.p.h. the tendency is reversed. Frequently we have found the pointer indicating 10 or 12 m.p.h., when the occupants of the car would have guessed the speed to be 5 or 6 m.p.h., and more often than not, even those who have proved to be good judges at from 16 to 24 m.p.h. will, when it is only 26 m.p.h., put the speed

at 30 m.p.h., and then at 35 m.p.h. when the actual speed is only very slightly higher. Needless to say, even slower or faster speeds are even more deceptive, while the impression of speed varies considerably with different types of vehicle, and with the width of the roadway between the hedges. Another matter on which the result of practical experience may be found useful relates to the driving mechanism employed by some makers for their speed indicators. We refer to the use of a friction drive—with rubber-faced wheel pressed up against a flat metal disc on the road wheel—which does not at first appeal to one as being likely to prove sufficiently accurate for the purpose. Such a device, however, which obviously has the merit of being simple, is employed on the "Smith" instrument that we have—amongst others—been using, and we have been agreeably surprised, when carefully checking the readings, to find how remarkably correct they have invariably been in practice.

VANDERBILT CUP RACE.—A view of the crowd at the Grand Stand after the race. The scoring board is seen erected on the top of the stand, where some venturesome photographers and others have taken up their pitch.

RACES, RECORDS, AND TRIALS.

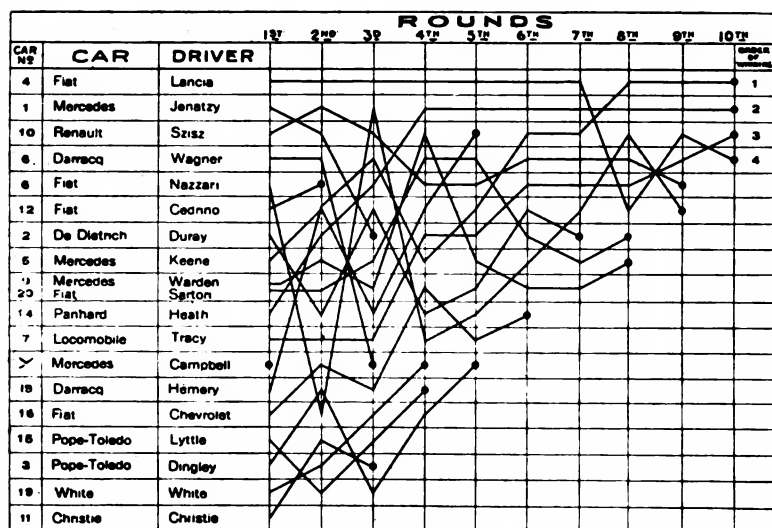
French Events in 1906.—As a result of the further deliberations of the A.C.F. Committees, the following supplementary decisions have been arrived at, in connection with the proposed touring events for next year. That the engine-power is to be calculated from the *piston area*, and that amongst the already specified classes of vehicles, there is to be an additional class for six-seated double phaetons without hoods.

Herkomer Cup.—Very active discussions are at present proceeding on the Continent in regard to the route for 1906 for the Herkomer Cup, June 10th to 20th. Several long "circuits" have been suggested, there being a considerable division of opinion as to whether the start should be from Frankfort or Munich. An influential following is in favour of Frankfort, but as the final decision rests with Professor Herkomer, it is thought that in all probability he will favour retaining Munich as the headquarters for this event.

Voiturette Competition.—The rules issued by *L'Auto* for this competition, taking place in Paris from November 21st to 27th, and summarised by us last week, have been approved practically in their entirety by the A.C. de France. The club made one or two suggestions and alterations, of which the only one of importance is that the minimum weight is brought down to 250 kilogs. instead of 350. Slight alterations are made in the allotment of

points, and passengers must be seated *side by side*. The selected course will be six times from Paris to Gaillon and back.

A HIGHLY amusing competition took place on the 26th of October on the big lake in the Bois de Boulogne. It was a motor boat fixture for the Branger Cup offered by the well-known Paris photographer, M. Branger, for the juveniles of Lutetia, and was to be competed for by toy motor boats, which, considering that they were not provided with the services of a pilot, gave a very creditable account of themselves. There was quite a concourse of people on the banks on either side, and at the crack of a pistol, off went the motor boats, driven by steam, electricity, petrol and spirit of wine. The course most of them took, however, was extremely erratic, and only one of them could be induced to directly approach the winning post, this, as it proved, being the slowest boat of all; but though slow she was steady, and kept her prow well fixed on the goal, with the result that she won the prize, while her faster competitors careered round the lake and ran into the bank in various directions. One tremendously fast little petrol boat came to grief, for it got so much way on that its bow plunged beneath the waves, there was a crack and a splutter, and the boat ultimately turned turtle. In fact, her performance was quite reminiscent of the Algiers-Toulon Race. The cup was ultimately gained by the steam boat Quinquina—the slow and sure competitor referred to above.



VANDERBILT CUP RACE.—An interesting diagram prepared by "The Automobile" is given above, showing positions of the contestants at the end of each round according to the actual time occupied by them. No. 17 did not start and is therefore omitted. The lines in this diagram have relation only to time and have nothing to do with numerical starting position or order of passage. All contestants are assumed to start together; therefore, as they can have no relative positions until the first round is completed, the names of the contestants are arranged in the order of their positions by elapsed time at the end of the first round. It will be noted that Warden and Sartori appear together in one space. This is due to the fact that both ran the first lap in the same time and were tied. The same applies to Keene and Hemery at the end of the second round. Campbell made only one round, at the end of which he was in twelfth place, and consequently is not represented by a line.

Ladies' A.C.—Among the hundred and fifty who attended the Hon. Charles S. Rolls' lecture — "Historical Reminiscences and Roadside Experiences"—at the L.A.C. on Thursday, October 26th, were the following:—Lady Cecil Scott Montagu, the first vice-president of the club, who welcomed Mr. Rolls and introduced him to the members; Lady Edward Spencer Churchill, the third vice-president of the club, who, after the lecture, thanked Mr. Rolls on behalf of the club; Mrs. Ainslie, the Baron and Baroness Campbell von Laurentz, Miss Christabel Browne, Captain Chichester, Mrs. Guy Hardy, Mrs. F. Morris Hartung, Mrs. Ashton-Jonson, Miss Kenealy, Mrs. Kellgren, Mrs. Mark Mayhew, Lady Manson, Mr. Lafone, the Lady Maud Parry, Mrs. Carpenter-Rowe, and the Hon. Lady Shelley. Within the last few months the following ladies have been elected members of the club:—Miss Ashwell, Lady Boughiey, Mrs. Henry Charrington, Mrs. Auerbach, Mrs. Akroyd, Mrs. William Chaver, the Dowager Lady Dudley, Lady Juliet Duff, Mrs. Louis Fagan, Mrs. Donaldson Hudson, Mrs. E. de Lisle, the Princesse de Polignac, Mrs. Harcourt Powell, Mrs. Douglas Murray, Lady Lathom, Lady Maud Parry, Mrs. Gordon Theed, Miss Stuart Wallace, and Lady Stirling.

VANDERBILT CUP RACE.—Lancia on the 120-h.p. Fiat, finishing fourth in the race. Lancia, it will be remembered, from our report of the race, in our issue of October 21st, made a splendid series of circuits surpassing everybody else's times, and his skillful driving for Italy, on the 120-h.p. Fiat, would undoubtedly have secured him the race, had it not been for the unfortunate collision which took place, when Christie ran into him on the course.

THE annual dinner of the Automobile Club will take place at the Hotel Cecil on Friday, November 24th, at 8 p.m.

THE Queen Mother of Italy has for a long time been, as all our readers are aware, an enthusiastic automobilist, but her record during the last month or so is certainly remarkable. From September 7th till October 17th she has, on a 24-h.p. Fiat car, actually covered some 4,812 kiloms. in spite of the bad weather frequently prevailing. Her daily average has been 80 kiloms. before lunch, and 120 kiloms. after lunch. She has traversed Switzerland, Germany, Holland and France, and on one occasion in Holland covered 283 kiloms. in a single day. Queen Margherita has received excellent consideration from the Dutch authorities, who appointed a special automobile, manned by three gendarmes, to precede her car and see that she was not subjected to any of the "attentions" which made some of her journeys in Italy far from agreeable experiences. Near Evian les Bains, a part through which the Queen passed, it appears that the peasantry are accustomed to play bowls on the high road, a custom which the advent of the automobile is likely to somewhat interfere with, and being irritated by the interruption occasioned, they endeavoured to barricade the road with a large beam put across it. Nothing would induce the bowl-playing peasants to remove the obstacle. A gendarme was summoned, and the peasants maintained that the car was exceeding the legal limit. Queen Margherita was unable to proceed till she had paid her persecutors a sum of 25 francs. We trust the authorities responsible for Evian les Bains will set their faces in future as much against playing bowls on the high road as the police for some time past have done against the time-honoured custom of football in the streets of Dorking and elsewhere.

Mr. H. Austin, who has for so many years been associated with the Wolseley Tool and Motor Car Company, Limited, and who is starting new works, where he will manufacture "Austin" Cars, at Longbridge, near Birmingham.

MR. H. AUSTIN, who has been so long associated with the Wolseley Tool and Motor Car Co., of Adderley Park, Birmingham, advises us that he is leaving the Company, and is starting works on his own account situated at Longbridge, near Birmingham, where he will manufacture vehicles which are to be known as the "Austin" cars. At first, Mr. Austin will turn out two sizes of tourist cars, viz., a 15-20-h.p. and a 25-30-h.p., both of which models will embody the best approved principles in design, and Mr. Austin proposes to use only the highest grade of materials in their manufacture. Moderation is to govern the selling price, and Mr. Austin hopes to make the car of his name a household word for reliability and good service. Captain Frank Kayser is associated with Mr. Austin in the new undertaking, and he will be assisted by a specially-selected staff, several of whom have been connected with him in the past. The works are of considerable extent, covering several acres, and are thoroughly suitable for the construction of automobiles of all types. Mr. Austin hopes to have his first 25-30-h.p. car on the road by the 1st of December, and to commence deliveries by the end of March, 1906. Mr. Austin sends us, in a tabulated form, an extremely interesting record gained by the cars which have been turned out by the Wolseley Company during his direction of that Company. This list bristles with gold and silver medals in all the leading reliability and consumption trials, exhibitions, &c., whilst in the speed events and hill-climbing contests, the number of winners makes a formidable show, these triumphs being in addition to the selection by the A.C.G.B.I. of the Wolseley racers in 1904 and 1905 for the Gordon-Bennett Race.

With the object of facilitating periodic cleaning, the "National" Exhaust-Silencer, of which we reproduce two photographs above, is constructed with but one central bolt to hold the various parts together. The interior portion—of which a separate view is given in the lower view—divides the box into four independent compartments, into which the gases are consecutively led by the perforated pipes that pass through, and carry, the three interior partitions. The exhaust-gases enter on the right, issue through the perforations into the first compartment, find their way into the central tube that leads them into the second compartment, have two perforated tubes available for conducting them into the third compartment, and finally arrive in the end compartment (which is open to the atmosphere) through the central tube once more. The lead-in tube and the central tube are, of course, plugged-up internally between the first and second and the second and third compartments, respectively.

VANDERBILT CUP RACE.—When tested before the American Eliminating Trials, and upon other occasions, the White Steam Racing Car—familiarily termed the “chicken-coop” by the Long Islanders—proved particularly fast, and therefore the poor performance of this vehicle in the race itself, caused considerable disappointment amongst its many supporters. Walter White, who drove the car had, however, a bad run of ill-luck. During the Eliminating Trials, in addition to serious tyre troubles, his pilot light was continually put out by a leakage from the water-tank, and it was, we understand, mainly owing to the trivial character of this cause of delay that the organisers of the race selected the White Steam Car to take part in the race itself. In the actual race, ill-luck with tyres more than ever seemed to dog Walter White's track, until it became almost hopeless for him to continue running, and when, with practically no chance, he was striving to make up for lost time, he blew a gasket joint in the cylinder head, and failing, in spite of every effort, to obtain a new gasket, he perforce had to throw up the sponge. In our photograph above, which was taken on the first run, it will be noticed that the car is travelling on three tyres only.

THE quaint old custom of holding an inquest by the City Coroner in cases of fires within the City boundaries, was celebrated on Friday last, when the fire which took place in Cornhill on the 16th instant, due to the lorry laden with petrol cans belonging to the Anglo-American Oil Company bursting into a blaze, was inquired into. From the “inquest” it transpires that there were 700 empty cans and 100 full ones on the lorry. There was a general agreement among the witnesses that there must have been a leaky can in the load, and that the leaking petrol was presumably set fire to by the rear lamp of the vehicle. This is the view taken by the jury, who accordingly returned the following verdict:—

“The jury are of opinion that the fire was caused by spirit leaking from a can and coming into contact with an improper lamp. They consider the carriage of petroleum through the streets should be regulated by the Petroleum Acts.”

It is very disconcerting to learn that the Marylebone Council has been recommended by its General Purposes Committee to support the London County Council's projected electric tramway from Marble Arch along Edgware Road to Cricklewood, *on condition that the Borough was not required to contribute to any necessary street widening.* For a long time past the way in which the affairs of Marylebone have been managed (?) has even caused judges in the High Court to describe them as providing “a complete satire on municipal trading.” Should the Council agree to this proposal, it will keep up the tradition of the satire. To think that an important local body can be so short-sighted in an important matter of this kind as only to consider whether the Borough will, or will not, be put to an immediate expense, is more than ridiculous, it is a scandal.

VANDERBILT CUP RACE.—The White Car on the second and third circuits, still struggling against tyre troubles. In the left picture, a front tyre is being replaced, and on the right a rear tyre is receiving attention.

Our photograph represents Mr. C. B. Gregson taking his 15-h.p. Spyker Car up Steep Hill, Lincoln. The gradient of this incline is, we learn, 1 in 4 $\frac{1}{2}$, and it must in this respect rank among the most severe "test hills" in England.

MOTOR BOATING.

THE French Maritime Week has been fixed for next year to take place at Havre from July 11th to 16th, a number of motor boat events being included in the programme.

CANNES annual regatta has been fixed for March 23rd to April 8th, between which dates the Alexander Burton Cup for motor boats will be run off.

THE Coupe Dubonnet for motor boats is to be disputed on July 8th next at Mantes.

Les Sports announce that they have selected July 10th and 11th for their motor boat race on the lower part of the Seine to the sea.

"PARIS-TO-THE-SEA" race for motor boats is to commence on July 8th next year, the first stage being to Mantes.

Motor Boat Run from Southampton to the Thames.—A very venture some engine-non-stop motor boat run was carried out last week under trying circumstances by Mr. E. Higley Halliday, of the firm of Messrs. Dixon and Halliday, motor boat builders. Mr. Halliday started from Southampton at noon on Wednesday in last week, and being determined to demonstrate that if he got to his goal he would do so without re-starting the engine, he handed over the starting handle to a third party as soon as he got under weigh. There was no means by which Mr. Halliday could have re-started his engine had it actually stopped, and had it done so the 30-foot motor launch Iris, on which he was making the attempt, would have become derelict in the Channel, and would have incurred a very excellent chance of being run down by some passing steamer during the night. The love of excitement strong within him, however, induced Mr. Halli-

day to take the chance, and he succeeded in getting well up the Thames to practically alongside Gravesend when his petrol supply gave out. He had exciting adventures. Everything went well till he ran into a fog, and then he was in trouble, for the petrol tins with which his boat was stored upset his compass needle, so he could not steer by that, and stars there were none. So he had to get along as best he could, dead slow, taking soundings at frequent intervals. On one occasion he nearly ran into a fishing boat which had its lights out. On another occasion he was overhauled somewhere near Beachy Head by a Channel pilot, who came almost alongside, and demanded to know "what sort of Robinson Crusoe business this was." Mr. Halliday, fortunately for himself, had plenty of provisions on board, particularly turtle soup, which he managed to heat with a Calorit apparatus. But what was his disgust when just preparing to swallow a bowl of it, nice and hot, to find that

he had to employ it instead to thaw his frozen-up carburettor! However, all's well that ends well, and Mr. Halliday safely arrived in the Thames where he was picked up by the motor yacht Kromhaut, near Gravesend, just when the engine had come to its last explosion from want of petrol. Of course, but for the unfavourable circumstances he encountered, and with clear weather, he would have been easily able to run the entire distance up to Chiswick, his intended goal, on the sixty gallons of petrol that he carried with him. The performance, however, from whatever point of view it may be regarded, is a remarkable testimonial to the possibilities of the motor boat, and to the pluck and endurance of Mr. Halliday. At the same time, one cannot help thinking that had he placed his starting handle in a sealed box, so that he could have got at it in real need, he would have been incurring less dangerous risk, and would have demonstrated the reliability both of the boat and its engines quite as effectively.



MOTOR CYCLING.

Passenger Motor Cycle Trials.—The awards in this contest which took place on Saturday, October 21st, under the auspices of the Auto Cycle Club, are as follows: Gold medals—9-h.p. Riley (No. 12), 4 $\frac{1}{2}$ -h.p. Phoenix (No. 9), 6-h.p. Leader (No. 7). Quadrant Carettes (Nos. 2 and 10) one medal between both. Silver medals—6-h.p. Singer (No. 6), 6-h.p. Singer (No. 15).



THE Mersey Railway Company, as we have already chronicled, will be in readiness within the next fortnight to run the service of motor 'buses from Birkenhead which they have been for some time organising. The first route to be opened is that from Palen Grove to Central Station, and four 'buses will be required for the route. Some hostility, or perhaps we had better say friendly rivalry, has been evinced by the Corporation, who intend at an early date running their own service of motor 'buses, but provided the competition is not carried on on too narrow lines, this ought to be to the general benefit of the inhabitants.

THE Brighton motor track was considerably damaged on Monday by the rough seas experienced.

THE magistrates at Bishop's Stortford are to be commended on their moderation. Evidently it is not their object to rake in fines in the manner of some other Benches we could mention. A Mr. Frederick Menzies, of Mayfair, was recently summoned to appear before them for exceeding the speed limit, but was unable to attend, and wrote to the Bench enclosing a £10 note to cover the fine. The magistrates extracted 50s., and returned Mr. Menzies the balance, doubtless to his no small surprise.

AT the auction sale of the Motor House, on Thursday of last week, several more well-known buyers participated, amongst the more prominent being the Duke of Manchester, who indulged, "under the hammer," in a 70-h.p. Panhard and a 30-h.p. 6-cylinder car. In addition, the auctioneer was successful in disposing of sixteen other 4-cylinder cars at high prices. The company's business appears to be growing very rapidly, and has necessitated their securing further new premises. We learn that they have now purchased the well-known premises of "Automobilia," at 532, Oxford Street, W. In addition to the premises, the company have also purchased the goodwill, stock of cars, accessories, plant, machinery, furniture, fixtures, and fittings, and the stock will be duly disposed of by them by public auction during the very special four days' sale they are holding on November 21st, 22nd, 23rd, and 24th. Extensive and elaborate alterations will be made on these Oxford Street premises, prior to their being subsequently opened for the general business of the Motor House.

A GOOD deal of fun has been made by some of the daily papers over the romantic hiding-places which the organisers and "magistrates' highwaymen" on the Ripley Road have arranged for themselves. Presumably they are tired of the pigstyes with which the police-trap has for so long been associated, and they have erected in consequence leafy retreats, overbranded with boughs of trees and other verdant accessories, in which they succeed in hiding themselves even more effectively from the gaze of approaching motorists than they have ever been previously able to do—in the ditches, sheds, and other fixtures which Nature or art has provided. Absolutely concealed from the public gaze in these umbrageous thickets, they pounce out with even greater effectiveness than before, or at least did so till the Automobile Association extended its activity to the Ripley Road. Since then the policemen, until the recent bad weather, have occupied the umbrageous thickets with comparative few excuses for emerging therefrom, and it is currently reported that they are now generally studying the first Eclogue of Virgil.

"THE Yorkshire Union of Agricultural Clubs" is not a name which conjures up ideas of extreme anxiety for progress, mechanical or otherwise, and it is therefore not at all surprising that at a meeting of this body the following resolution was proposed:—

That the maximum speed of motor cars be twelve miles an hour, and local highway authorities be invested with power to reduce the limit of speed when driving through towns and villages, and that the penalties be increased, and the owner or hirer, if present when the offence is committed, to be liable to the same punishment as the driver, and that the Yorkshire Union of Agricultural Clubs be represented before the Royal Commission.

Opinions were not altogether one way, however, and the chairman of the meeting, Major Dent, was opposed to a speed-limit, and maintained that the real test was danger to the public. As soon as, in his opinion, motors became generally driven by gentlemen, "we shall very soon get them to observe all the decencies of the road." Finally Major Dent's amendment was carried by the bare majority of one vote. The significance of Major Dent's remarks is greatly increased when we bear in mind that he is a member of the notorious Knaresborough Bench.

Parsons' Non-Skid Owner Wanted.—Mr. C. J. Allin, Hon. Secretary of the Derby Automobile Club, writes us as follows:—"A Parsons' non-skid has been found near Belper this week. In case this should belong to any of your numerous readers, would you be kind enough to mention this fact in your next issue, and state that if they will apply to me (St. Albans, Friar Gate, Derby), stating size and where lost, I shall be pleased to give them the address of the finder."

The Motor Omnibus Boom.—To give an idea of the demand there is for petrol motor omnibuses, the Motor Car Emporium write us that last week they made their record booking of orders in one week—108 for the London General Omnibus Company, 16 for Italy, 5 for Ireland, 12 for Egypt, and 25 for a new London company. They also secured orders from the Glasgow and South-Western Railway, and other railway companies.

The first of the Motor Cabs which the London Motor Transit Company have acquired for placing in regular service on the streets in the Metropolis. They intend to introduce 100 cabs within the next few months. Each cab is to be lighted electrically, and warmed internally by the water that cools the engine.

SIR ALBERT K. ROLLIT, M.P., will open the forthcoming Stanley Show on Friday, November 17th.

THE firm of Fils de Peugeot Frères have decided to construct a large number of standard voiturettes for 1906, the first turnout to be 1,000 cars.

DR. H. R. MILL has brought out a book which he entitles "The Siege of the South Pole." He is very sanguine of the capabilities of the automobile, and thinks that Captain Scott would have done much better than he has done if, instead of using dogs and men to draw his sledges, he had proceeded to storm the South Pole with motor cars. He observes :—

If a motor car ran at the rate of only 5 miles an hour for a couple of days before it broke down, it would give a sledge party a *dépot* far from their main base, and allow of the inspection of a much greater area than could otherwise be examined.

THE Negus of Abyssinia (that is the official title of the Emperor Menelik) has always been recognised as a progressive Sovereign, and now he is importing traction engines, built by Messrs. Fowler and Co., into his Empire of Abyssinia. The engines, which are of the standard single-cylinder type, used for agricultural purposes, are now being conducted by representatives of the firm across trackless wastes on their way to Adis Abeba, where they are to be put to work.

INSTRUCTIONS in technical subjects by correspondence is a leading feature of popular education in the United States, and we are, therefore, interested to observe that the method has now been extended to automobile topics, and that a Correspondence School of Automobile Engineering has been established in Akron, Ohio. The syllabus appears to be an extensive one.

Considerable ingenuity is being almost daily brought to bear in the design of motor car bodies, whereby increased comfort and utility is embodied in up-to-date vehicles. Miss Beatrice Savile is responsible for certain innovations in the body-work of the above 24-h.p. De Dietrich Car. Some of the more special features which Miss Savile has introduced are the side glass panels which can be taken out at a moment's notice, and the car converted into either an open limousine or a covered brougham, thus rendering the car suitable for either town or country work by day or night, summer or winter. The door-window slides behind the side window panel and does not interfere with the view when touring. Good seating accommodation is provided on the rear seat facing forward, and an extra drop seat or hinged table or parcel rack can be fixed opposite. The double curve in the design of the carriage body itself gives a particularly pleasing effect to the general appearance of this very beautiful carriage.

THE Local Government Board have consented to issue an order fixing the speed of motor cars, in response to an application by the Kingston-on-Thames Corporation for a six-mile limit, to ten miles an hour in ten of the principal streets of the town.

It is satisfactory to learn, in reference to a recent midnight meeting of the members of the "London 'Bus, Tram, and Motor Workers' Union," that the horse 'bus drivers of the metropolis are universally coming to recognise that the motor 'bus is the 'bus of the future, for we are informed that most of them are taking lessons in learning how to drive motor 'buses in their spare time, although how much spare time the average horse 'bus driver enjoys is usually what mathematicians call an infinitesimal.

WE learn that Mr. George Cecil, who has been a profuse contributor of chatty and interesting motoring articles to the Press, is about to take over the editorship of the *Boudoir*, an excellently got up and well-illustrated periodical, which has shown its enlightenment by making its readers familiar with the advantages of motoring as a sport and pastime.

New Cars for Old.—The Gladiator Company notify us of a novel departure on their part in connection with their 2-cylinder Gladiator cars. Any owner of one of these is invited to give particulars of the performance of the car since it entered their possession. Then the owner who proves that his car has given the most satisfactory results will have, absolutely gratis, a new 1906 2-cylinder 10-h.p. Gladiator in exchange for his old car.

CLUBS AND ASSOCIATIONS.

British Empire Motor Trades Alliance.—This Association has been registered as a limited liability company under the Companies Acts, 1862 to 1900. (Company limited by guarantee, and not having a capital divided into shares). The members consist of the following firms:—Albany Manufacturing Co., Ltd.; Argyll Motors, Ltd.; Ariel Motor Co., Ltd.; Sir W. C. Armstrong, Whitworth, and Co., Ltd.; Brampton Bros., Ltd.; Clarkson, Ltd.; R. W. Coan; Daimler Motor Co., Ltd.; Dean and Burden Bros., Ltd.; Dunlop Pneumatic Tyre Co., Ltd.; S. F. Edge, Ltd.; Electric Ignition Co., Ltd.; W. T. Flather, Ltd.; Gratzel Patents and Engineering Synd., Ltd.; Hoffman, Manufacturing Co., Ltd.; Humber, Ltd.; Iden Motor Car Co., Ltd.; James and Browne, Ltd.; Lacre Motor Car Co., Ltd.; Legros and Knowles, Ltd.; Joseph Lucas, Ltd.; Maudslay Motor Car Co., Ltd.; New Arrol-Johnston Car Co., Ltd.; Palmer Tyre, Ltd.; Phoenix Motor Co.; Price's Patent Candle Co., Ltd.; Simms Manufacturing Co., Ltd.; Star Engineering Co.; Sunbeam Motor Car Co., Ltd.; Swift Motor Co., Ltd.; J. I. Thornycroft and Co., Ltd.; Wolseley Motor Co., Ltd.; Worsnop and Co., Ltd.

Motor Union Annual Dinner.—The annual dinner of the Motor Union has been arranged for Wednesday, November 22nd, at the Trocadero Restaurant. For the convenience of provincial members of the Union, it has been fixed for the week of the Olympia Show. As the application for tickets will be very large, members of the Union who desire to be present should secure their seats without delay. The chair will be taken by the Hon. Arthur Stanley, M.P., and some distinguished guests will be present.

Motor Yacht Club.—At the last meeting of the Committee it was unanimously decided to open a subscription list to present the Societe de la Voile d'Arcachon, purely a sailing club, with a Cup to be raced for next season, as a small token of the unbounded hospitality which they recently extended to the members of the British Team for the International Cup.

Nottingham A.C.—Professor Robinson, Principal of the Engineering Department of the University College, delivered, on October 23rd, an interesting lecture, before the above club, on "Motor Car Engines." In the course of his remarks, Professor Robinson dealt in a lucid manner with the causes of pre-ignition and gave many interesting points about ignition systems generally. The lecture was rendered particularly interesting by the various models which the author collected for the purpose of illustrating his remarks.

THE Annual Invitation Smoking Concert given by the Stanley Cycling Club, just previous to the holding of the Show, will again be held this year at the Queen's Hall, Langham Place, on Friday, November 3rd. Tickets can be obtained from the hon. sec., Mr. E. P. Hewkin, 106, Tollington Park, N.

COMMERCIAL POINTS.

The Krebs Carburettor.—Arrangements have now been made, at the Panhard and Levassor repair works in London, for supplying and fitting this well-known automatic carburettor to any existing cars, at a greatly reduced price.

THE Earl of Mexborough has placed an order for one of the new 22-28-h.p. 1906 Crossley cars.

WE learn from the Simms Manufacturing Company that the engine fitted to the motor road-roller, illustrated in last week's issue, is made by them, and is one of a number supplied to Messrs. Barford and Perkins, who constructed the machine.

MESSRS. FRANK LITTLE AND CO., of Newcastle-on-Tyne, are pushing the motor business considerably in their district, both for business and pleasure vehicles. At the recent Grocers' and Allied Trades Exhibition at Newcastle they got together an excellent exhibit, the feature being commercial motor cars suitable for these particular trades.

At their stand at Olympia during the Motor Show, the Gladiator Company advise us that they will have a useful little novelty for distribution, one of which will be presented to any applicant. It is a small instrument named the Metrometre, and its purpose is to enable motorists to ascertain the horse-power of an engine. Those not visiting the Show can have one of the instruments by forwarding three stamps to the Gladiator Company, 8 and 9, Long Acre, London, W.C.

MESSRS. HUMBER, LIMITED, have decided upon issuing, for the future, a guarantee for twelve months from the date of purchase with all of the motor cars of their make, relying with absolute confidence on the British workmanship and high-class material which they embody in their motor vehicles. The Humber Company are not only now placing their cars advantageously in the home market, but have built up an important export business which necessitates the dispatch of cars every week to widely-separated parts of the earth, many of the Company's make of car finding their way to France itself.

THE Crossley-Leyland motor 'bus, which was illustrated in our last issue, is, we learn, fitted with Royal Sirdar Buffer tyres.

A GOLD medal has been awarded at the Liege Exhibition to the Halle Spring Wheel, a set of which were recently subjected to a 4,000 miles test under the auspices of the Automobile Club.

LEGAL CASES.

Lights: New Decision.—A new point was raised at West London Police Court on Tuesday, when Mr. Walters, solicitor, of Royal Crescent, Kensington, was summoned for neglecting to have his motor car lamps lighted at night. Defendant contended that as the car had been brought round to his house door to await him for use after dinner the car was not actually in use. Mr. Lane said the point was a new one, but he must conclude that any car standing in a public place at night, whether in use or not, must be lighted. He imposed a 10s. fine.

CORRESPONDENCE.

* * *The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.*

SAVE US FROM OUR FRIENDS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Surely the promotion of any huge scheme for providing motor main roads is most urgently undesirable at the present critical moment, just when all moderate motorists are trying their very utmost to show the public that cars are so controllable as to be absolutely safe on ordinary highways or even country lanes.

Cannot point-to-point speedists defer these somewhat visionary plans until a later stage of development, instead of raising up, so inopportunistically, a host of fresh enemies from amongst railway shareholders, and, worse still, giving away ready-made "expert" arguments to the Highways Protection League?

Not in vain has their secretary advertised for help; but at least we did not expect to be so sorely wounded in the very house of our friends!

Your obedient servant,
OCTOBER 26TH.
LEVESON SCARTH.

"PETROL, STEAM, AND THE CLUB."

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Perhaps it might interest Mr. E. W. Sheppee to have me reply to his letter, which appeared under the heading of "Petrol, Steam, and the Club," on page 1334 of your issue of October 28th.

The reason I think my reply might interest him is that I sell more steam motor cars in Great Britain than all the rest of the steam car companies put together.

My reply to the accusations against the A.C.G.B.I. would be that in every instance the accusations are utterly unfounded and untrue.

I am, yours faithfully,
35-37, King Street,
Regent Street, October 26th.
FREDERIC COLEMAN.

Good News for Owners of De Dion-Bouton Cars.—Owing to the fact that De Dion-Bouton cars are different in design and construction to ordinary types, and the large number in use in this country, the company have opened workshops in London for the repair of their cars. This step has been further prompted by the difficulty frequently experienced in many districts in obtaining proper attention to repairs. Owners of De Dions will in the future be able to have their cars attended to by men specially trained in De Dion-Bouton car construction. A large stock of parts of all the company's models is held by them in London, consequently prompt attention can be given to all and sundry requirements. Enquiries should be addressed to the head office, 10, Great Marlborough Street, London, W.

ARGYLL MOTORS, LIMITED, have had an extremely successful year. The directors at their meeting on Monday in Glasgow recommended a dividend of 10 per cent. on the ordinary shares, and 6 per cent. on the preference. The profits amount to £32,531, of which the directors have written £5,897 to depreciation, £8,877 to vendors in terms of the prospectus, £3,000 to preference share reserve fund, £4,000 to general reserve, and carry forward £3,000.

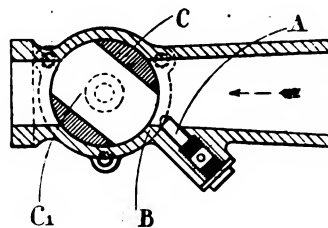
THE net divisible profits of the Rover Cycle Company for the year ending August 31st last amount to £16,211, after providing for debenture interest, directors' fees, depreciation, bad and doubtful debts. Out of this the directors propose paying a ten per cent. dividend for the year, to place £5,500 to general reserve, and carry forward £3,920.

BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

2530. February 8th, 1905. Improvements relating to Driving Gear for Motor Cars and for other Services. Edgar J. de Normanville, 6, Clarendon Crescent, Leamington Spa, and Henry J. Lee, 41, Widdrington Road, Coventry. This invention relates to driving gear for motor cars, the object being to construct and arrange variable speed gear of the epicyclic type in compact form, and suitable for convenient combination with the differential gear. There are two figures. Fig. 1 is a central longitudinal sectional elevation. The complete epicyclic trains forming the speed gear and also the differential or balance gear are mounted about a one-part or undivided shaft or axle, *a*. Upon one end of a sleeve, *b*, formed with or fixed to a chain or other wheel or driving element, *c*, is a central gear-wheel or pinion, *d*, forming the sun-wheel of an epicyclic system. Three planetary wheels or pinions, *e*, arranged in constant gear with the sun-wheel, *d*, are mounted on a rotatable carrier comprising a brake-drum, *f*, which may be set free to rotate or held against rotation. With each of the

motion from the rotation of the planets on their respective axes, *i*, but will also receive an increased movement due to the rotation of the planet carrier set up by the arrest or retention of the toothed ring, *m*, engaging the primary planets, *e*. For the third speed, a second sun-wheel, *n*, is freely mounted on the shaft, *a*, and connected by a sleeve extension, *n'*, with a brake-wheel, *o*, whereby it may be prevented from rotation at will. The sun-wheel, *n*, gears with the extensions, *i*, of the secondary planets, *e*. When the sun-wheel is held by its brake-pulley, *o*, the other brake-pulleys of the complete device being free, the toothed ring, *j*, of the driven element, *k*, will receive motion from the planets, and also from the planet carrier, *f*. But the latter now receives its motion from the sun-wheel, *n*, instead of from the larger ring, *m*, as in the second-speed drive, with the result that an increased rate of carrier rotation is obtained, which, together with the rotation of the secondary planets on their own axes, gives the required speed to the driven element, *k*. For the fourth or high speed, it



planetary pinions, *e*, there is formed an extension or another pinion, *g*, which engages a secondary or intermediate planet pinion, *h*, and an extension, *i*, from this latter pinion engages and drives an internally-toothed ring, *j*, attached to or forming part of the driven element, *k*, enclosing the differential gear. With a set of three of the planetary pinions, *e*, with their extensions, *g*, there is a set of three of the intermediate or secondary planets, *h*, each having the extension, *i*. Both sets are mounted on the carrier, *f*, by means of the pins *l*, forming the axes of the respective duplex wheels or pinions. This mechanism, when the carrier, *f*, is held or prevented from rotation by a brake-strap or similar device, constitutes the first or slow-speed drive. The second-speed drive is obtained as follows:—Surrounding the primary planet pinions is an internally-toothed ring, *m*, the exterior of which serves as a brake-wheel or pulley. When the ring is held against rotation, and the planet carrier, *f*, is released or set free to rotate, the toothed ring, *j*, forming part of the element, *k*, to be driven, will receive

is merely necessary to clutch or lock together any two of the sets of intermediary gearing to give a direct connection between the driving and driven parts. To obtain a reverse drive, a supplemental pinion, *r*, is formed or provided with each of the primary planets, *e*, but of a smaller diameter. The pinions, *r*, gear with a loose sun-wheel, *s*, adapted to be arrested by a brake-pulley, *t*, as with the parts previously described, so that the planet carrier, *f*, is rotated in a direction opposite to that of the rotation of the main or driving sun-wheel, *d*, referred to—October 11th, 1905.

26753. December 8th, 1904. Improvements in or relating to Carburetors particularly applicable to Internal Combustion Engines. Edmund W. Lewis, 2, Albany Road, Coventry. In this invention the fuel is drawn from the nozzle, not directly by a vacuum, but by the velocity of the air passing the nozzle, and this velocity can be controlled by hand or otherwise, the controlling means being connected to the throttle-valve, so that as the throttle valve is opened to cause the suction on the nozzle to become

NEW COMPANIES REGISTERED.

[Taking powers to manufacture or deal in motors, motor cars, or accessories, either as their principal or part of their objects.]

Aster Engineering Company (Limited).—Capital, £50,000 in £1 shares. Object, to adopt two agreements with the Société l'Aster and Aster, Limited, respectively, and to carry on the business of manufacturers of motor cars, omnibuses, &c., makers of chassis, machinery, &c. First directors, M. Cheronet (chairman), A. Monard, L. C. Getti, G. M. Bertault, and S. D. Begbie.

Buckingham Gate Garage and Engineering Company (Limited).—Capital, £2,000 in £1 shares. Object, to acquire the lease and assets of the business carried on at Buckingham Gate Garage and Engineering Company.

Leader Motors (Limited).—Capital, £15,000 in £1 shares.

Lenox Autocar Company (Limited).—Capital, £5,000 in £1 shares. Object, to acquire the business of the Lenox Autocar Company, 81, Dalmain Road, Forest Hill, S.E. First directors, A. J. Kemp, A. H. Salmon (managing director), H. Pantin, and C. Foster.

PUBLICATIONS RECEIVED.

Ordnance Survey Maps. Sheets 31, 32, Great Grimsby; Sheet, 22, Preston. London: Board of Agriculture and Fisheries, 4, Whitehall Place, S.W. Price, 1s. 6d. each.

greater the path for the air near the nozzle is simultaneously enlarged so that the greater quantity of air necessary passes at the required velocity to enable it to take up just the proper amount of fuel desirable. There is one figure, a section. To effect the end above described, the top of the nozzle or fuel outlet, *A*, is arranged close to the wall, *B*, of the spray-chamber, and a cylindrical plug, *C*, is rotatably inserted in the spray-chamber between the nozzle and the engine. This plug, *C*, is conveniently larger than the bore of the spray-chamber, and has formed in it a transverse passage, *C'*, each end of which may communicate with the spraying-chamber on one side of the plug. By rotating the plug, the registration of these ends with their respective parts of the spraying-chamber may be varied so as to operate as a throttle-valve in the manner of a plug-cock. The side of the plug adjacent to the nozzle, owing to its proximity, operates to impart to the air passing the nozzle the required velocity, whilst the other side operates as a throttle-valve in substantially the usual manner. The plug may be arranged as close to the nozzle as possible, and the passage, *C'*, is arranged so that as the plug is rotated both ends are simultaneously closed and opened.—October 11th, 1905.

Patent Specifications Published

Applied for in 1904.

Published November 2nd, 1905.

- 21,494. G. P. J. LION. Explosive engines.
- 21,730. A. DUNHILL. Dust screen.
- 22,059. F. BAMFORD. Explosion engines.
- 24,243. C. H. WYNN and C. A. HAMILTON. Driving mechanism.
- 24,473. J. BREV. Motor ploughs.
- 25,199A. F. WINDHAUSEN. Explosion turbines.
- 25,319. A. H. CROCKFORD. Transmission gearing for heavy motor vehicles.
- 25,746. L. R. DOKAN and A. TAGGART. Driving mechanism.
- 26,215. W. J. TOOLEY. Motor cycles.
- 26,810. F. H. ROYCE. Carburetors.
- 28,352. J. J. COLLET. Composition for closing punctures.

Applied for in 1905.

Published October 26th, 1905.

- 2,530. E. J. DE NORMANVILLE and H. J. LEE. Driving gear.
 - 6,275. C. HUGOT. Driving gear.
 - 9,544. G. IHLE. Speed indicators.
 - 12,088. H. JUNKERS. Explosion engines.
 - 12,184. C. ROSSEL. Cover for tyres.
 - 13,674. T. B. BROWNE. Motor road vehicles.
- Published November 2nd, 1905.
- 883. R. H. JONES. Contact breakers and switches.
 - 2,175. I. R. VAN WART. Lamp brackets.
 - 2,744. T. CROIL. Motor vehicles.
 - 3,431. H. S. SAMUEL. Wind shields.
 - 3,697. R. M. A. B. MUNRO. Controlling devices.
 - 3,950. H. BROOKS. Armoured treads for tyres.
 - 7,109. J. DRING. Petrol filters.
 - 10,218. J. SPYKER. Attachment of radiator.

The Automotor Journal, November 11th, 1905.

THE AUTOMOTOR JOURNAL

A RECORD AND REVIEW OF APPLIED AUTOMATIC LOCOMOTION.

Circulates amongst Makers and Users of Motor Cars, Cycles, etc., in the United Kingdom, the Colonies, and the Continent.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Nov. 15, 22, 29, Dec. 6, 13	Practical Lessons on Motor Cars (Ladies' A.C.).
Nov. 17 ...	*Quarterly 100 Miles Trials.
Nov. 17-25 ...	Society of Motor Manufacturers and Traders Exhibition at Olympia.
Nov. 17-25 ...	Stanley Show.
Nov. 22 ...	Motor Union Annual Dinner, Trocadero.
Nov. 24 ...	A.C.G.B.I. Annual Dinner, Hotel Cecil, 8 p.m.
Nov. 25 ...	North London A.C. Annual Dinner.
Dec. 4 ...	"Explosion and Flame in Relation to Motor Car Engines," by Dr. W. R. Ormandy (Manchester A.C.).

1906.	
Jan. 17 ...	Auto-Cycle Club Dinner.
Jan. 19-27 ...	Birmingham Motor Show.
Jan. 26-Feb. 3	Crystal Palace Motor Show.
Feb. ...	*Tyre Trials.
Feb. ...	*Lamp Trials.
March 9-17 ...	Glasgow Motor Car Show.
March 24-31	Cordingley and Co.'s Motor Show.
Aug. ...	*Van Trials.

Foreign Events (Trials, Races, &c.).

1905.	
Nov. 14-18 ...	Sydney-Melbourne Trial.
Nov. 21-27 ...	French Voiturettes Trials (L'Auto).
Dec. ...	Coupe de Salon, Paris (Motor Boats).
Dec. 8-24 ...	Paris Automobile Salon.
1906.	
Jan. 13-20 ...	Brussels Exhibition.
Jan. 13-20 ...	American A.C. Show, New York.
Jan. 17-20 ...	Western Indian Trials.
Jan. 22-27 ...	Ormond-Daytona Beach Races.
Jan. 26-30 ...	Calcutta Motor Trials.
Feb. 3-18 ...	Turin Automobile Show.
April 1-15 ...	Monaco Motor Boat Exhibition and Races.
June 10-10 ...	Herkomer Cup.

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

Evidences of Increasing Prosperity.

THIS year's balance-sheet of the Daimler Company, which has just been issued, will, in all probability, be looked upon in future as a very significant land-mark in the progress of the automobile industry in this country. The results of the year's trading are not merely satisfactory; it is not too much to say that they exceed our most sanguine expectations. On an issued capital of £62,269 (£1 ordinary shares), what amounts to a dividend of 10 per cent. has been declared, while on a nominal capital of £64,200 of preference shares, of which half only has been called up, a return equal to a dividend of 13½ per cent. has been arranged for, and while these thumping dividends will go into the pockets of the shareholders, no less a sum than £30,000 is being carried forward to the benefit of the reserve fund. When we call to mind the vicissitudes which all the pioneer motor companies passed through in the earlier days of the industry, the splendid success of the Daimler Company's past year's trading, which these figures bear witness to, is a proof of triumph in quite a number of different directions. It is a triumph for the business management, the technical staff and the Board of Directors, who have successfully pulled

the company out of a position which was far from roseate. It is a proof of the great and growing vitality of the British automobile movement, and the value of the British market, and it is above all an illustration of what manufacture on a proper scale, with sufficient capital behind it to enable up-to-date production to be carried out on the large standardised scale, which alone means adequate profit, can effect.

It is pleasing to find that the Daimler Company does not stand alone as an automobile manufacturing concern in which the past financial year has been characterised by a phenomenal success. The balance-sheet of Argyll Motors, Limited, to which we referred last week, is satisfactory reading for the company's shareholders, a dividend of 10 per cent. on ordinary shares and 6 per cent. on preference shares having been declared.

* * *

May they Not Encourage the Company Promoter.

THESE satisfactory figures and balance sheets are also evidence that the automobile movement may now be completely regarded as having recovered from the evil results of the sinister operations of company promoters, which almost wrecked it for so long in this country, and paralysed its prosperity for quite a number of years. It is earnestly to be hoped in the interests of the movement, that the satisfactory position of which these two great companies is such unmistakeable evidence, will not have the effect on any serious scale of causing unprincipled company promoters who have no real trading interests at stake to once more direct their malign influence upon the automobile movement. "Operators" of this sort would use automobilism to-day, meat extract to-morrow, and chemicals on the day after, if such tactics seemed to afford a chance for floating companies which would successfully transfer the money of the public to their own pockets, without caring in the slightest what ruin they might strew around them. Should they again devote themselves to the automobile, we feel convinced that the industry is now strong enough to prevent their operations producing any very dangerous results, but, nevertheless, a good deal of harm might be done. It is harm which the public can prevent by adopting a sensibly critical attitude to any such promotions which might be made, and by remembering that the high profits have been earned, and the splendid financial position to which we refer has been attained, solely by the persistent exercise of the ablest technical ability, the profoundest business capacity, and the most unrelenting and ceaseless application of tireless energy and ever-ready initiative.

* * *

Killing the Goose that Lays the Golden Eggs.

THE phenomenally reckless expenditure of the London County Council, which has for so long been a topic of animated discussion in almost any paper in the Metropolis from *The Times* to Mr. *Punch*, and which is due in the main to the Council's unwavering determination to electrotramify the greater part of the Metropolis, without pausing to consider the disadvantages of this already nearly superannuated means of locomotion, is having an effect which the Council, when it embarked on its wild-cat schemes of electrification, steamboat service, and other form of municipal trading, little contemplated. While the general ratepayer, the individual represented in *Punch* with a rotund figure decorated by a white waistcoat, appeared as the principal

victim, the community as a whole bore the situation with patience and fortitude, particularly those who were not ratepayers. The Council doubtless thought that prosperous tradesmen, merchants, and the like, were fixtures in the Metropolis, who, however the burden of rates ran up, though they might groan in public and use forcible and picturesque phraseology in the privacy of their homes, would have to "pay, pay, pay," and look pleasant or the other thing. The case of the great industries—the few of them that remain, we should say, still clinging to London—is apparently forgotten. Great manufacturing concerns are with very questionable wisdom most heavily rated, and the enormous rise in London rates accordingly means a tax upon them which may go a long way to annihilating the difference between working at a profit and working at a loss. As among the first fruits of the disastrous municipal expenditure, therefore, we must count the fact that Messrs. Yarrow and Co., of Poplar, contemplate transplanting their great works from the banks of the Thames to the banks either of the Tyne or the Clyde, and they are not, if all that we hear is to be believed, the only great firm that contemplate a similar exodus. Let us trust that the effect will be to warn the County Council in time. London has lost one after another among the great industries which supported its population in the past. To drive the remaining ones elsewhere by perpetually running up rates is simply killing the goose that lays the golden eggs. We hear enough of the distress of the east of London. It is shocking and serious enough in all conscience as it is, and Poplar would appear to be one of the most distressful districts. Its state, after the removal of the Yarrow works, will be simply calamitous. The removal of other works will affect other districts in a similar way; and though the gratitude of electrical contractors to the County Council is doubtless great, we do not hear of any proposals on the part of such firms to migrate to London in recognition of the manner in which the Council has supported them. The prospect of a London of the future, all of whose industries have been driven elsewhere by reckless County Council expenditure, is a prospect which ought to give even County Councillors themselves pause.

* * *

The New Rules for the Tourist Trophy.

ON another column of the present number of the Journal we reproduce the revised rules which the Races and Technical Committees of the Automobile Club have elaborated for regulating the Tourist Trophy Competition of next year, which may, by the way, be run in May instead of September. The underlying spirit of the regulations is, of course, identical with that which governed the rules this year, but we are glad to see that a number of highly important alterations and additional provisions have been introduced, and we are confident that they will undoubtedly have the effect of causing the competition to approach more completely to the excellent ideal which its original projectors and organisers set before themselves. It will be very difficult for the reader, at first sight, unless he has an unusually good memory, to fully grasp how the new rules differ from the former ones, but their more important aspects may be briefly summarised as follows:—Most important of all, possibly, is the reduced fuel allowance, the natural tendency of which will be to lower the average speed maintained throughout the race, but hardly less so is the abolition of the

"maximum" weight limit of the chassis. General satisfaction will be felt with the latter, for the 1,600-lb. limit, which we have protested against from the very first, was conclusively shown to be detrimental in the Isle of Man this year. It is intended, moreover, to increase the weight which has to be carried by the chassis, and this also may be expected to have an equivalent effect. The fuel allowance is reduced from a gallon for each $22\frac{1}{2}$ miles to a gallon for every 25 miles, and the weight of body, passengers, and ballast (now lumped together) is to be 1,100 lbs. as against 950 lbs. As concerns the speed capabilities, further new conditions have been imposed; though, apparently, their object has equally been that of making the competing cars even more suitable for ordinary private use. We refer to the gear-box restrictions, and to the specified height of the backs of the seats from the ground. Not only are more than four forward speeds prohibited, but every car has to show that it is not geared abnormally, for it will be called upon to ascend a hill of 1 in 6, and also to run at as low a speed as 12 miles per hour on the level with its top gear in use. The height of a seat is calculated to have a material effect on the "windage" of a car, a matter that seriously affects speed capabilities.

♦ ♦ ♦ Freaks Eliminated.

OTHER regulations now incorporated apparently aim solely at limiting the event to *bona fide* pleasure cars, one of these being that certain momentary stops are to be made at specified points, and another being that the chassis length has been increased (from 6 ft. 6 ins. to 7 ft. behind the dash). The former can obviously be taken further advantage of, if necessary, since that certain dangerous spots on the route could thus be virtually neutralised. Somewhat in the same category, moreover, though slightly different in that they also guard against certain evasions of the rules, is the regulation rendering it incumbent on the manufacturer to arrange the body quite independently of all pipe connections or wires, and in fact not only to have an easily removable body, but to make the chassis absolutely complete in itself. There are, moreover, a series of important restrictions that affect the construction and arrangement of the entire fuel system, while one precautionary measure that will unquestionably be welcomed by all competitors, saddles the officials with the duty of cutting open the fuel tanks on the first three cars after the race. Freaks are to a certain extent guarded against by one "discretionary" clause, and by another clause that prohibits exhaust-relief-valves or ineffective silencers. But, generally speaking, the rules, as amended, are now fairly adequate for eliminating freaks, in themselves.

♦ ♦ ♦ Steam Cars Admitted.

THE most radical change, however, and one which cannot but give universal satisfaction to all, since it is the first serious attempt that has been made to overcome a great difficulty, is that which allows steam cars 50 per cent. more fuel than petrol cars, and allows them to use whatever liquid fuel they prefer. Even if, with this allowance, it is unlikely that a steam car could at present secure the coveted trophy, the effect of the new rule will nevertheless be of value, for it will render available much valuable data that can be taken advantage of for future occasions. In view of the strong feeling that has—however reasonably or unreasonably—arisen in certain quarters on this very question, we congratulate the club on having now taken the bull by the horns, and on

having made an official statement on the subject. This statement is contained in the following explanatory resolution which, by the express desire of the Technical Committee, should be read in conjunction with the new rules. It reads as follows:—

Owing to the many radical and inherent differences between internal combustion engines and external combustion engines, and to the lack of sufficient comparative data on the subject, it is, in the opinion of the Technical Committee, impossible to arrive at any accurate basis by which steam cars can now be placed on precisely parallel footing with petrol cars in the Tourist Trophy race. In view of the strong desire of the club to induce owners and manufacturers of steam cars to take part in that event, they feel justified in now adopting for the 1906 race, a purely arbitrary basis of comparison, whereby it is estimated that the power of the engines, and, consequently, the speed capabilities of the steam car, may be expected to approach to those of the petrol car.

In conclusion, we cannot avoid expressing our satisfaction that many of the conclusions at which we arrived in the series of articles we devoted to the subject, even prior to this year's race, have been proved to be so near the mark, and so correct in general tendency by being thus largely embodied in the rules for next year's Tourist Trophy. It was, of course, a foregone conclusion that numerous modifications would have to be made to the original rules after the first race of the kind had been held, and it is evident now that the Races and Technical Committees have not only taken full advantage of this year's experiences in the Isle of Man, but have also been able to bestow very mature consideration on all the many general questions involved.

♦ ♦ ♦ The C.T.C. on the Right Side of the Fence.

A CONSIDERABLE proportion of the cycle interest is somewhat hostile to automobilism. We are accordingly pleased to find the *Cyclists' Touring Club Gazette*, which represents the aristocracy of cycloedom, taking up a very judicial attitude in regard to the Royal Commission on the Motor Car Acts. On the whole the organ of the C.T.C.—they have, we believe, a considerable number of motor cyclist members—is on the automobile side of the fence, and the club has given evidence before the Commission, though, of course, we do not know what the evidence was. In order to help us form a guess, however, the *C.T.C. Gazette* has kindly outlined its position in its last number. From this we learn with satisfaction that the club will not oppose the abolition of the speed-limit, as "in their opinion it has quite failed of its object." We never quite knew what its object was, but we are glad to find it has failed in it. The C.T.C. also puts forward some recommendations designed in the cyclist interests to replace, or, at any rate, supplement, the clause about driving to the public danger. These are that it should be an offence to jamb a cyclist into the hedge—a very proper provision, though it is not expressed quite like that—that any motor car driver who raises such a dust as to create a nuisance or goes round a corner at high speed on the wrong side of the road, shall be guilty of offences. It is also pleasing to note that the C.T.C. are as much alive as ourselves to the horrible nuisance occasioned by small boys who, having by some means or other become possessed of a bicycle, rig out the same with a motor car hooter, and so induce nervous pedestrians to jump out of the way under the expectation that a high-powered automobile is in full progress upon them. We hope the C.T.C. will be decided on this question, and that their activity may result in the incorporation of some such provision in the next Motor Car Act.

THE 1906 LEGROS AND KNOWLES "IRIS" CARS.—PART I.

Fig. 1.—The new Legros and Knowles "Iris" Chassis. View, from the "off" side, of the 25-30-h.p. Model.

EVEN at the Olympia Exhibition last February, when the first Legros and Knowles chassis made its public appearance, it was at once recognised—by engineers at any rate—that those responsible for it had made a very close study of motor car construction, and had very fully grasped the many important problems that are involved in up-to-date automobile design. The Legros and Knowles stall therefore proved itself to be one of the chief attractions of that particularly successful Show. Most motorists realised that another first-class British

make of car would shortly be available, and that the home industry was becoming more and more capable of holding its own. Good as was the chassis then exhibited, the 1906 touring cars, of which we now give full particulars, are, in numerous respects, far better, and it therefore goes without saying that the new 4-cylinder models are well worth the close attention of all.

It is the two touring models with which we are chiefly concerned at present, and these are, to all intents and purposes, identical except in size. A very good, general

Fig. 2.—View, from above, of the 1906 "Iris" Chassis, for Pleasure Vehicles, showing the new Engine, which is carried by two, transverse, tubular members of the frame, the 3-point suspension Gear-Box, the special Universal-Joints on the Propeller-Shaft, and the "live" rear-axle with its Foot- and Hand-operated Hub-Brakes.

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Fig. 3.—The 1906 Legros and Knowles Chassis. View showing the distinctive appearance of the new 25-30-h.p. and 35-40-h.p. Touring Cars—the shape of the Radiator, the position of the Circulating-Pump, and the special construction of the Tubular Front-Axle.

indication can, however, be given of the direction in which their development has proceeded during the year, if we refer for a moment to the commercial and the marine work which the firm also have in hand; the very substantial engine which was used on the 1905 pleasure vehicle is now only employed for 'buses, luries, and—in a suitably modified form—for boats. A special feature is being made of the "Iris" double-deck 'bus, which seats 36 passengers and has a worm-driven live-axle, while the same chassis lends itself admirably for other types of heavy vehicle.

Reduction of weight is, indeed, the first thing that strikes the casual observer when looking at the latest pleasure cars, for last year's model was, it will be remembered, unusually heavy, and very little attempt had then been made to keep the weight down. Even the new vehicles, however, are far from being unduly light, and a careful comparison between the two models shows that neither strength, durability nor accessibility have been sacrificed to any appreciable extent. The earlier car was very fully described in our May issues.

Such comparison brings to light the fact that the new chassis differs entirely in almost every way from that of last year. It has, for instance, a bevel-driven live-axle instead of side-chains, the rear springs are of the full

elliptic, instead of semi-elliptic pattern, and all the brakes act direct upon the hubs of the road-wheels.

To begin at the beginning, however, it should be mentioned that one of the chief aims of the designers has been that of securing absolute silence at all times. Not only, therefore, have the exhaust gases been effectively muffled by the provision of two consecutive exhaust-boxes, but the gearing has been rendered as noiseless as possible, and steps have otherwise been taken to prevent any portion of the mechanism from rattling. Another point to which attention should be directed, before passing on to matters of greater detail, is that a very distinctive external appearance has been obtained for these cars. This is, in small measure, due to the rear springs, already referred to, but has been chiefly brought about by the unusual form of the radiator and bonnet. As seen in our illustrations, the car is diamond-shaped when looked at from in front, and the bonnet, which is made out of one metal sheet and is hinged centrally to the dash, slopes down very sharply from the central ridge at the top.

The Special Features.

Other special characteristics, which in accordance with our usual practice will be briefly enumerated in advance, for the benefit of those who do not care to enter into greater detail, are as follow :—

Fig. 4.—Rear View of the new "Iris" Chassis, giving an excellent general idea of the special Live-Axle construction—which enables the Differential-Gear to be removed easily—the full Elliptic Side-Springs, and the double Brake-system for the Driving Wheels.

(1) Even the cam-shaft on the engine has ball-bearings, and, therefore, the sweeping statement may be made that ball-bearings are fitted to all shafts, with the solitary exception of the crank-shaft.

(2) A single lever above the steering-wheel serves to control the power and speed of the engine, which is otherwise ungoverned; this lever simultaneously advancing or retarding the time of ignition, and opening or closing the throttle-valve.

(3) The engine itself is of very simple design, with induction-pipe passages formed across inside the castings that constitute each pair of cylinders; all the valves, which are interchangeable, lie alongside one another, and not only can the base of the crank-chamber be removed without disturbing the crank-shaft, but, in much the same way, the entire cam-shaft with its oil-tight casing can be detached from the engine.

(4) Great care has been taken to render the water pump accessible from the front of the vehicle, and for this reason it has been fixed to the radiator, where it is gear-driven by the engine.

(5) Only one pipe is used for feeding the engine with oil from the pressure-fed lubricator on the dashboard, and this dashboard fitting has combined with it the two-way switch for the ignition system (and for the carriage lamps); in this way it is impossible for a careless driver to run the engine without oil, and it is also impossible for the engine to be flooded with oil when the switch is turned off.

(6) Ignition is effected with a single trembler coil, in conjunction with a high-tension distributor, placed beneath the bonnet.

(7) A main clutch of the multiple disc type—the "Bradley" pattern—is employed, this having, as our readers are already aware, metal-to-metal friction surfaces contained in an oil bath.

(8) Three forward speeds and a reverse are provided by a gear-box of the sliding spur-wheel type, which gives a "direct-through-drive" on the top gear, and is fixed to the frame at three points only.

(9) A very remarkable form of universal joint has been adopted for both ends of the propeller shaft, this consisting of three flat plate members, which are made of spring-steel, and afford all the flexibility that is required. The plates are connected together across alternate opposite corners, and they have the effect of providing a universally flexible coupling, that has no rubbing friction surfaces.

(10) Quite the most important portion of the chassis is the live-rear-axle, for not only are the road-wheels

mounted quite independently about the stationary axle tube, but the axle is so designed that the differential-gear, together with the bevel wheels that drive it, can be removed without otherwise dismantling, or taking off, the axle; the axle is connected to the main-frame by radius rods at each side, as well as by a central torque-rod, and there is to be a simple device for relieving the springs of all side strains. The interior arrangement of the axle is such that bevels of different size can be employed to suit the individual requirements of all users.

(11) Two brakes, side by side, are fitted to the hubs of the driving wheels, and the operating and compensating mechanism by which one on each hub is applied by hand, and the other pair by foot, is carried alongside the axle-tube; all four are of the external, contracting type, and all four brake-bands are held steady by springs that prevent them from chattering.

The Chief Dimensions.

The smaller car has a 25-30-h.p. engine, the cylinders of which have a $4\frac{1}{4}$ -in. bore and a stroke of $5\frac{1}{4}$ in. At a speed of 800 revs. per min., it develops 25-h.p., while the higher quoted power (30-h.p.) represents its output at a speed of 1,100 revs. per min. The corresponding cylinder dimensions of the engine on the larger vehicle are 5 in. and $5\frac{1}{4}$ in. respectively, this engine being rated at 35-40-h.p. since its output corresponds with those figures when running at 750 and 1,100 revs. per min. respectively.

Both cars are designed to take side-entrance bodies, with seating capacity for five persons, and both chassis have the same wheel-base, track, and tyres. The wheel-base is 9 ft. 6 in., the track 4 ft. 5 in., the front wheels have 815 by 105 mm. tyres, and the driving tyres are 820 by 120 mm.

As already pointed out, the design of the chassis is practically the same in both cases, the only difference being in point of size of the various parts. The photographs that we give of the 25-30-h.p. chassis, in Figs. 1, 2, 3, and 4 are, therefore, almost equally applicable to the 30-40-h.p. model. Fig. 1 is a view from the "off" side, Fig. 2 is taken from above, Fig. 3 is a front view, and Fig. 4 shows the chassis from the rear. The actual machine from which they were taken was fitted, temporarily, with a clutch of the internal cone type, instead of its proper multiple disc clutch, so that, in this respect, the chassis shown differs slightly from standard.

(To be continued.)



Royal Commission on Motor Cars.—At the regular sittings of the Commission, the latter part of last week and the early part of this week, under the presidency of Viscount Selby, amongst the witnesses examined have been the following:—Mr. Alexander Govan, manager of the Argyll Motor Works, Glasgow; Sir William Vincent and Mr. W. H. B. Holton, on behalf of the County Councils Association; and Mr. D. Crichton, hon. secretary of the Roads and Traffic Reform Association; Mr. A. Campbell Swinton, chairman, London and District Motor Omnibus Company (White Arrow line); Mr. Clarence Freeland, managing director of the London Motor Omnibus Company (Vanguard line); Mr. E. C. Sanders, clerk to the Liverpool Justices, on behalf of the Incorporated Justices' Clerks' Society; and Mr. H. H. Copnall, clerk to the

Nottinghamshire County Council, on behalf of the County Councils Association; Captain Sant, the Chief Constable of Surrey; Superintendents Moore, Powell, and MacIntyre, of the Metropolitan Police; Captain Fullarton James, Chief Constable of Northumberland; Dr. Williams Freeman, of Weyhill, Andover; and Mr. T. W. Grace, President of the Manchester Automobile Club.

THE Automobile Association Cyclist Patrols were on duty last week end from Purley Corner to Patcham on the Brighton Road, from Kingston to Hindhead on the Portsmouth Road, and from Hurstbourne Priors to Wallop Cross on the Andover Road. These patrols, officially appointed, always carry a yellow badge—the same colour as the cover of THE AUTOMOTOR JOURNAL—either on the arm or under the coat.

MULTI-CYLINDER ROLLS-ROYCE CARS— TWO 8-CYLINDER MODELS.

FROM one to two in the very early days, from two to four a little later, from four to six comparatively lately, and now from six to eight. Such practically sums up one of the many lines of development traversed in the history of petrol cars—remarkably rapid development, too, as all our readers are aware. Although not entirely a novelty, since more than one engine of a somewhat similar type has already appeared on our pages, the new 8-cylinder engines now being put on the market by Messrs. Rolls and Co. are bound to create quite a sensation amongst motorists, particularly as they form the chief feature of two of the standard 1906 Rolls-Royce vehicles that are to be shown at Olympia. Both cars, moreover, demand attention from other points of view, as well as from that of the engines, for one is intended to appeal to those for whom electric carriages have special attractions, and the other has been designed as a touring car for running at

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and they both have leather-faced cone-clutches. The landaulette, which seats six persons, naturally differs more from ordinary cars than does the 3-seated "Legal-limit" phaeton, and thus it is that its chassis—of which a good side view is given in Fig. 1—has several unusual features, of which the position of the engine is but one. The steering-gear, for instance, has a bevel-gear device introduced into the column that carries the wheel, so that the lower end of the shaft passes rearward, at right angles to the upper portion of the steering-pillar. This vehicle has a 7 ft. 6 in. wheel base, and 820 by 120 mm. tyres, whereas the other new model has an 8 ft. 10 in. wheel base and 810 by 100 mm. tyres. Both cars have a transverse spring at the rear, in addition to the usual semi-elliptic side-springs.

Our other illustrations all refer to the engine, these

Fig. 1.—Side view of the 8-cylinder Rolls-Royce Landaulet Chassis, showing the ingenious arrangement of the Bevel-gear in the Steering-pillar, and the position of the Engine beneath the driver's feet.

has thus been possible to give to the "Landaulet" the same external appearance as the well-known electric vehicles which are naturally so much in vogue in London, and the smooth running resulting from the use of so many cylinders still further completes the resemblance between the new car and those carriages. The engines are but little longer than an ordinary four-cylinder engine, they require less head room, and they materially exceed the usual dimensions in point of width only, because the cylinders are fixed diagonally—four on each side—to the crank-chamber, all sloping outwards at 45 degrees from vertical. The power available is about 20-b.h.p. at a speed of 1,000 revs. per min., and, since the cars are geared to only 26 miles per hour on the "direct-drive" top-gear, it is comparatively seldom that the change-speed-mechanism has to be manipulated. The three forward speeds, provided by sliding spur-wheels, represent 11, 18, and 26 m.p.h., respectively, both cars are of the chainless type, with "live" rear-axes,

photographs and drawings having been supplied to us by Messrs. C. S. Rolls and Co. Taken in conjunction with one another, they give a good general idea of its construction, even though in some respects the details are not as clear as might be wished. The views in Figs. 2 and 3 are taken more or less from the front, Figs. 4 and 5 from above and beneath respectively, Fig. 6 is a side elevation, and Fig. 7 is an end elevation (partly sectional). Fig. 8 is a side view, and happened, at the time the photograph was taken, to be fitted with a second set of ignition-plugs, for the purposes of determining the best position for them in practice.

Each cylinder-casting, of which there are four, constitutes a pair of cylinders, complete with their jackets, heads and valve chambers, and these are all bolted in much the usual way to the upper half of the crank-chamber. Instead of lying vertically, however, their axes are set at an angle of 45 deg. to the vertical, and thus the four cylinders on the one side are at right

Figs. 2 and 3.—Two views showing the front end of the Rolls-Royce 8-cylinder Engine, with the enclosed Governor (F) above—and the gear-driven Oil (E) and Water (D) Pumps beneath—the casing containing the entire gearing.

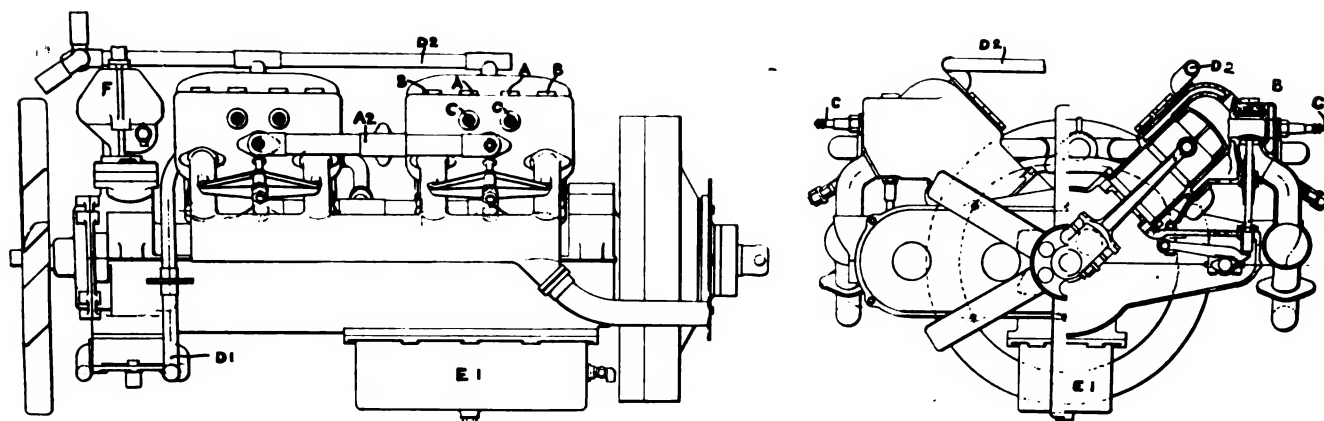
angles to the four on the other side. The cylinders on the two sides are moreover not quite opposite one another, but are slightly staggered, as seen in Fig. 4. This enables straight connecting-rods to be employed, and all the big-ends are quite independent of each other on their crank-pins. An important point in connection with an engine of this design is that although the crank-shaft receives a regular series of impulses—one for each quarter revolution of the shaft—yet the crank-shaft itself is quite a simple forging, and all the crank-pins are either in line with one another or immediately opposite one another; the shaft is, indeed, precisely similar in shape to that for an ordinary 4-cylinder engine.

In spite of the diagonal positions of the cylinders, the valves, all of which are interchangeable, are placed vertically, as in an ordinary engine, those on the one side of the engine being operated by one enclosed cam-shaft, and those on the other side by a similar cam-shaft. Incidentally, this disposition automatically gives the very advantages that have been specially secured by some makers of vertical engines in the past, for the valve

chamber is brought more closely up to the cylinder proper, and consequently the wall-surface of the combustion-chamber walls is reduced in area (see Fig. 7); hitherto, it will be remembered, it has been the valves that are set at an angle to the cylinders instead. Above each valve is the usual inspection plug, and, passing through the wall of each valve-chamber is the horizontal ignition plug, C; the inspection-plugs above the inlet-valves are marked A in our illustrations, and those above the exhaust-valves are indicated by the letter B.

Except for its unusual shape, the crank-chamber is made in the same way as that of most engines, and the spur-wheels by which the two cam-shafts are driven are enclosed in an oil-tight casing in front. There are, however, gear-driven vertical shafts passing through this same chamber also, and these drive the water-pump, D (on the under-side), the lubricating-pump, E (also beneath), and the governor (inside the casing, F, above). The pump, D, forces the water through the pipes, D¹, into the base of all four cylinder-jackets, whence it is led back to the radiator by the pipes, D². Similarly,

Figs. 4 and 5.—Top and bottom views of the Rolls-Royce 8-cylinder Engine. In the former, the simple Pipe-connections for the Water and for the Carburettor are prominent, while the latter clearly shows the Oil (E) and Water (D) Pumps, for lubricating and cooling the Engine.



Figs. 6 and 7.—Side elevation and end elevation (partly in section) of the 20-h.p. 8-cylinder Rolls-Royce Engine. In Fig. 7, the shape of the Combustion-chambers is clearly indicated, and the arrangement of the Cam-shafts is also rendered evident.

the pump, E, draws its supply from the well, E', in the base of the crank-chamber, and delivers it to all the bearings of the engine, the oil ultimately finding its way back again to the well. For the lubricating system the crank-shaft has oil-holes drilled through it; for regulating the pressure in the feed passages, a relief valve is fitted, this valve allowing any surplus oil to escape back direct to the well, as soon as the necessary pressure has been attained. In this manner, an entirely automatic feed is obtained, and the engine at all times receives a constant supply of oil.

Projecting horizontally, just below the governor-casing, F, is the horizontal shaft, C', that is caused to rock about its axis by the governor, and is connected up to operate the throttle-valve, A'; part of this mechanism is, however, missing in our illustrations. The vertical governor-shaft projects up through the top of the casing, F, and it is for the purpose of driving the combined commutator and distributor (for the ignition) system that it does so. This ignition apparatus, which is fixed independently in the chassis and is driven through a universally-jointed shaft, is shown from two different points of view in Figs. 9 and 10.

It is used in conjunction with two trembler-coils, one of which serves for each set of four cylinders, and it not only completes the circuit between the battery and the low-tension windings of the coils, but also distributes the high-tension current to the ignition-plugs. In Figs. 9 and 10, the low-tension contact-drum, C', with its two carbon contact-brushes, is visible outside the casing, C', and the high-tension terminals for the distributor are seen in place on the casing. The terminals,

C', are those to which the independent secondary windings of the two coils are connected, and those marked C' are the terminals from which the eight wires are led to the two sets of four plugs.

The time of ignition can be varied by the lever, C', which acts upon a spiral key-way device contained inside the casing, C'; by this mechanism the revolving member of the distributing commutator is caused to rotate relatively to the governor-shaft, and hence the time of ignition can be varied, although the casing, C', remains stationary.

In Fig. 8 the position of the carburettor, A', will be noticed, as also the branched induction-pipe, A', by which it is connected with the inlet-valves. The throttle-valve, A', lies centrally above the crank-chamber, where the separate induction-pipes join up together (see Fig. 4).

The cylinders themselves are of small size, the bore and the stroke being only $3\frac{1}{4}$ ins.; the reciprocating parts are consequently sufficiently light to permit of high-

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Fig. 8.—View of the 8-cylinder Rolls-Royce Engine, from the left side. In this illustration, additional Ignition-plugs (C) are temporarily fitted into the Cylinder-heads, but usually the Horizontal Plugs only are employed.

speed running without any undue vibration. At its normal speed of 1,000 revs. per min., the engine develops about 20-b.h.p.

As already mentioned, one ignition-plug only is provided for each cylinder, although two are seen in Fig. 8. That particular engine was so fitted in order that the best position for ignition could be determined, and a decision could be arrived at for standard practice in future. It is interesting to know that the horizontal plugs passing through the wall of the valve-chambers was found preferable to those projecting direct into the centre of the combustion-chambers.

Table of Reference Letters for the Rolls-Royce Illustrations.

A	Inspection plugs above inlet-valves.
A ¹	Throttle-valve.
A ²	Branched induction-pipe.
A ³	Automatic carburettor.
B	Inspection plugs above exhaust-valves.
B ¹	Ignition-plugs.
B ²	Shaft connecting governor and throttle.
B ³	Low-tension contact-drum.
C	Casing, carrying H.-T. contacts.
C ¹	H.-T. terminals for coils.
C ²	H.-T. terminals for ignition plugs.
C ³	Timing lever.
C ⁴	Casing containing timing device.
D	Water pump.
D ¹	Supply pipes to jackets.
D ²	Pipes from jackets to radiator.
D ³	Lubricating-oil pump.
D ⁴	Oil-well in crank-chamber.
D ⁵	Governor-casing.

Figs. 9 and 10.—Two views of the combined Commutator and High-Tension Distributor, which is fitted—with its spindle projecting up vertically from the Governor-shaft—on the 8-cylinder Rolls-Royce Chassis. It is used in conjunction with two separate Trembler Coils, each of which operates one set of four cylinders.



Dagonet on Municipal Trams versus Motor Busses.—The paragraphs which we reproduce below are culled from Dagonet's "Mustard and Cress" column of the *Referee*, which, as everyone knows, is the usual weekly contribution to that paper of Mr. G. R. Sims. Mr. Sims, as is hardly necessary to observe, is one of the most far-seeing and level-headed writers in London. It would be impossible, as our readers will observe, to put the case against the indefinite extension of trams with greater cogency or force. We reproduce Mr. Sim's views with the greater pleasure as they so entirely accord with those expressed by us time and again during the past seven or eight years:—

"I AM as fond of tram rides as anyone, and quite as fully alive to the advantages of cheap locomotion as any Progressive gentleman on the L.C.C. who has tramways on the brain, but I cannot let my tram worship blind me to the peril looming ahead.

"I am convinced that within the next ten years many of the tramway lines laid down at the ratepayers' expense will have to be taken up because they will be hindrances to the development of traffic. In some of the outlying districts of London the tram lines are already sources of constant local inconvenience. Look at the deadlock on Kingston Bridge.

"It has been decided to run a tram line from the Marble Arch to Cricklewood. Why? To join up with the trams that run from Cricklewood to Edgware. But there is absolutely no necessity for the expense or the interference with traffic which the laying of the tram lines will mean. The Vanguard and Victory motor 'buses run from the corner of the Edgware Road to Cricklewood every few minutes all day long.

"The tramcar stops at almost every lamp-post. The journeys are slow and irritating in consequence. The motor 'bus, on the contrary, travels rapidly and with few stoppages, and can dodge in and out of the traffic and get ahead of everything. It is as sensible to lay new tram lines in and around the Metropolis now as it would be to stretch overhead ropes across the streets to hang oil lamps on.

"The luxury on some of the new tram lines intended mainly for the working-classes is a specimen of the recklessness of those who trade with the ratepayers' money. The cars are palatial in their appointments. They are upholstered in velvet, the windows are expensively curtained, the electric fittings are worthy of a Park Lane mansion, and the woodwork is of the daintiest description, and most artistic construction.

"I sat in one of these cars the other day next to a poor hawker and his wife. The woman gazed for a moment in silence at the surroundings in which she found herself, and then she turned to her husband, and exclaimed with a sigh, 'Oh, Bill, how can we go back to our 'umble 'ome after this!'

"I would not say a word against this extravagance of the municipalities in the matter of the tram service if I did not feel that the motor 'bus is bound ere long to compete with them, and to beat them in the matter of popularity. Moreover, the tram line always depreciates the value of the property through which it passes. The motor 'bus improves it."

"Police-trap" or "Motor Car trap"?—Everyone has had a little fun about the precise magistrate of Kingston who objected to the expression "police-trap," and explained to a trembling defendant that he was not justified in using this expression, but that what he undoubtedly meant must be "motor-trap." "If you set a trap to catch rats," said the magistrate, "that is a rat-trap." Apropos of this, the *Daily News* has become facetious, and positively suggests that upon the magistrate's principles of phraseology, a constable whose business it is to detect and bring to justice hooligans, ought to be called a "hooligan-constable." It is a sign of the times to find a paper which has not been characterised by appreciation of the automobile movement venturing to suggest that such a conception as a hooligan-constable is a possibility.

FIG. 9.—The Bassée-Michel High-Tension Magneto (1906 Type).—View of the special Switch which forms part of the apparatus and enables a battery of accumulators to be instantly brought into use, instead of the magneto, when necessary. The view on the extreme right is taken from behind, and shows the permanent inter-connections.

diagram in Fig. 7 shows all the necessary connections. All the terminals on the actual apparatus are stamped with the same letters or figures as are used in this particular diagram, which is, therefore, self explanatory. The letter E, however, has been introduced in order to indicate which parts it is necessary to "earth" by connecting them to the frame of the car. Generally the magneto is "earthed" by the bolts used to secure it in place, but where it happens to be supported by the dash or floorboards, so that it is not in actual metallic contact with the frame, then it will be necessary to effect this connection by a wire. It would be better, however, to join the "earth" wire from the battery, to the magneto frame, instead.

With a separate coil system, it is not necessary to provide a special switch for short-circuiting the armature, as it is when the secondary winding is wound on the armature itself.

The Battery Circuit.

Most motorists nowadays like to have their cars fitted with an alternative ignition system, and in comparatively few instances are they willing that their cars should be unprovided with a set of accumulators. With the 1906 Bassée-Michel system the installation of battery ignition is a particularly simple matter, and all that the owner has to do is to purchase the accumulator; the coil, switch and distributor are already provided, and what is more, are essentially designed for such use. When the battery is in action, it is connected to the small-resistance primary coil which has been specially wound

to be suitable for working direct on four-volts. As there is no trembler, the contact-breaker on the magneto is used instead, but this is, as we have explained already, connected in the circuit of this coil. All that is necessary, therefore, when changing over from one system to another is to turn the switch. It should be borne in mind, however, that a contact-breaker is not the same current-saving device that the trembler is, and motorists should naturally not use the batteries unnecessarily.

Table of Reference Letters for the Bassée-Michel High-Tension Magneto (1906 Type) Illustrations.

A	Armature core.	F ⁵	Conductor strip to F ¹ .
B	Armature spindle (driving end).	F ⁶	Contact plate for F ⁷ .
C	Armature spindle (cam end).	F ⁷	Contact spring to F ⁶ .
D	Contact-breaker cam.	G	Magneto.
E	End-plates on armature core.	G ¹	Magnet base-plate.
F	Armature coil.	G ²	Magnet pole-pieces.
G	Armature slip-ring ("live").	K	Timing-lever.
H	Contact-breaker.	K ⁴	Rocking plate.
I	Collector-brush ("live").	K ⁵	Spring for retaining K ⁴ in position.
J	Brush-holder.	K ⁶	Washer.
K	Adjustment-screw for C ² .	L	Lubricator.
L	C ¹ , C ² Magneto terminals.	M, M ¹	Bearing-plates.
M	Secondary winding of coil.	M ²	Armature bearings.
N	"Live" terminal of D.	N	Battery.
O	H.-T. Feeder sleeve.	Q	Induction-coil core.
P	H.-T. Distributor brush.	Q ¹	Induction-coil case.
Q	H.-T. Distributor contacts.	R	Ignition-plugs.
R	Stationary distributor spindle.	T	Primary winding of coil (for magneto).
S	Spur-wheel driving distributor.	T ¹	Terminal of T ("live").
T	Spur-wheel on B ¹ .	T ²	Primary winding of coil (for battery).
U	Safety spark-gap on coil.	T ³	T ⁴ and T ⁵ Terminals of T ² .
V	Terminals on distributor.	Y	Switch contact-bar.
W	Idle pinion between D ⁷ and D ⁸ .	Y ¹	Switch contacts.
X	"Earth."		
Y	Condenser.		
Z	Condenser terminal ("live").		
	Condenser case.		

OUR attention has been drawn to the fact that the "M. and B." steering-gear, of which we gave an illustrated description the week before last (Oct. 28th), is similar in many respects to that of the Albany Manufacturing Co. The latter mechanism was shown in equally full detail by us on page 228 of our issue of Feb. 20th, 1904, and those who may take sufficient interest in the subject have, therefore, an excellent opportunity of comparing the two designs. The Albany Co. inform us that their steering-gear was patented by them in 1901 (the number of the patent being 21071), and they appear to consider the "M. and B." mechanism to be an infringement of that patent; naturally, however, this is not a matter that has any direct bearing for the majority of our readers, nor is it one upon which it is necessary for us to express an opinion.

It is satisfactory to find that the inquest into the sad accident that occurred near King's Cross Station, in which Lord Rosebery was the occupant of a car belonging to Mr. Leopold de Rothschild, which ran over and killed a young woman of the name of Brown, has resulted in complete exculpation of the driver of the car, the verdict being "accidental death." Special interest attached to the proceedings, owing to the fact that Lord Rosebery came forward to give evidence on behalf of the driver. It appeared that Miss Brown, after starting to cross the road, a short distance in front of the car, vacillated, as so many women do when they see a vehicle approaching, ran to and fro, turned towards the car and then, when too late, started to walk forward again. It is one of the most fruitful causes of accidents, and the most difficult for drivers to guard against.

HIGH-TENSION MAGNETO IGNITION.—Continued.

THE GIANOLI SYSTEM.

Introduction.

THE Gianoli System is one of those in which the magneto is of the real high-tension type; that is to say, the secondary winding is wound direct on the armature itself, and no use whatever is made of any separate external induction

therefore, when the same current strength has been arrived at, no matter how fast the magneto may be driven.

In this way it serves the important function of a voltage controller (or pressure regulator), since it neutralises the effects of any excessive voltage which may be generated in the armature at very high speeds. The faster the armature turns, however, the earlier will the contact-breaker come into action—since the voltage rises more quickly—and it follows, therefore, that the device also constitutes an automatic “advance” and “retard” for the ignition. In practice, however, this is naturally not relied upon entirely, since obviously it could not meet all requirements on any car. Hand-timing is, therefore, provided in addition, and here, as elsewhere throughout the construction of this machine, an extremely simple and effective method has been devised. For the purpose, the magnets have been provided with adjustable pole-pieces, and these are connected to the timing-lever so that they may be rocked about the armature. Altering the position of the pole-pieces is, of course, equivalent to tilting the magnets, or re-setting the armature relatively to the engine—as is done in the Eisemann system—and it has the same effect of advancing or retarding

FIG. 1.—The Gianoli High-Tension Magneto.—View showing the machine complete; and also the High-Tension Distributor, which in this system forms a separate unit—designed to be driven by the engine, like an ordinary “commutator.”

coil. This in itself is nothing unusual, but the Gianoli System has, nevertheless, many peculiarities in detail, which render it not only distinctive, but also very important from the user's point of view.

Foremost among its features, is the extreme simplicity of the magneto itself—in fact, as a unit, it is the most simple of all the high-tension machines which have hitherto come before our notice. This simplicity is mainly due to two departures from orthodox practice, *viz.*, the substitution of an automatic contact-breaker for that of the mechanically-operated type, and the transposition of the high-tension distributor from its accustomed place on the magneto to that usually occupied by the “commutator” on most engines. The introduction of the automatic contact-breaker is, however, not primarily done with a view to increasing the simplicity of the machine as a whole, for there are other important benefits in connection with this device, which enable it to play an important part, electrically as well as mechanically, in the individuality of the Gianoli System. This contact-breaker is actuated by the magnetism induced by the armature current—in much the same way as a trembler on an ordinary trembler coil—and it comes into play,

the ignition as have these other earlier methods. It has, too, the advantage of providing a practically unlimited

FIG. 2.—The Gianoli High-Tension Magneto.—View of the machine partly dismantled to expose the Armature in position between the Magnets; also showing the adjustable Pole-pieces, G^1 , by which the time of ignition is varied.

range, and in this respect differs from those systems in which only the contact-breaker is rocked over, relatively to the armature shaft, in order to "time" the spark.

The continued preference, at the present day, for fitting two systems of ignition to cars has led the manufacturers of the Gianoli magneto to make provision for the alternative use of an ordinary battery and coil by combining a mechanical contact-maker with the high-tension distributor, so that that member may form a complete unit for use with the accumulator system as well.

In constructional detail, as well as in the design, there are several points of interest, and in the new models which are now being made to the specifications of Mr. McCormack there will be even further improvements. It is interesting to note—and it is an important fact in favour of the magneto—that the Gladiator cars for next year are, amongst others, being fitted with them. Mr. McCormack has now formed an English agency for the independent supply of these machines for any type of car.

Our Illustrations.

All the more interesting features of this machine are shown in our illustrations. The magneto complete is seen in Fig. 1, and the same view also shows the separate distributor which is used with it. In Fig. 2 the front bearing plate and high-tension collector have been removed to expose the armature *in situ*, while separate views of the armature, adjustable pole-pieces, and magneto are seen in Fig. 3. A sectional line drawing, showing the general arrangement of parts, is given in Fig. 4, and the illustrations in Fig. 5 show, in detail, the construction of the automatic contact-

breaker, the theory and action of which is diagrammatically illustrated in Fig. 6. Separate views of the high-tension distributor are given in Fig. 8, in order to show its construction more clearly than is possible in Fig. 1. Diagrams, illustrating two important and interesting points in connection with the action of the automatic contact-breaker also appear in Figs. 7 and 9, but these will be described in due course. The Gianoli system is, as we have already mentioned, adapted for the alternative use of battery ignition, and the special coil-box and switch, which are supplied for this purpose, are illustrated in Figs. 11 and 12. The internal electrical connections of this box are shown in Fig. 13, and a diagram of connections for the Gianoli system (magneto only) is given in Fig. 10. The scheme of wiring for the two systems combined is diagrammatically shown in Fig. 14, and this, in itself, is sufficient to enable any motorist to make, or check, the connections on his car.

The Magnets.

There are two peculiar features in the construction of the magnets. The first of these is the adjustable pole-pieces, which have been referred to before, and the second is the method of securing the elements in place without drilling them. In form, the magnets are of the usual compound horse-shoe type, and they are composed of six separate units, or elements. The inner members are somewhat shorter than the outer members, in order that they shall accommodate themselves to the steps, or ledges, which are cut in the fixed, cast-iron pole-pieces, G^3 , on which they are mounted. This particular arrangement is very clearly indicated in Fig. 3, and it will be noticed that even the outer members rest directly on the pole-pieces, G^2 , and not on the base-plate, G^1 , as is the more usual practice. This enables them to be rigidly secured by means of the brass-straps, G^6 , which are screwed directly to the pole-pieces, G^2 . The pole-pieces, G^2 , are themselves bolted to the base-plate, G^1 , in the usual way, and the various members thus form a rigid unit, without it having been necessary to drill holes in the magnet limbs. M. Gianoli lays great stress

on this point, and claims that, by keeping the limbs intact, he is able to obtain more powerful magnets and at the same time render them less liable to demagnetisation while the machine is in use.

The adjustable pole-pieces, which enable the magneto to be "timed" by hand, are formed by a pair of cast-iron shields, G^5 , similar—except for the fact that they do not revolve—to those used on the Simms-Bosch magneto for another purpose. These shields are carried by the main-bearing-plates, M and M^1 , which are themselves mounted so

that they are free to be rocked about the armature-spindle, which they also support. The adjustable pole-pieces, G^5 , make an easy sliding contact against the fixed pole-pieces, G^2 .

(To be continued.)



THE Middlesex County Council have issued a report from which we gather that the sum of £3,174 11s. was received during the last financial year under the Motor Car Act in fees for the registration of motor vehicles and licensing of drivers. The figures are made up as follows:—Motor cars, 1,076; heavy motor vehicles, 21; motor cycles, 1,300; driving licences (including renewals), 5,997; duplicate licences, 79; copies of entries supplied from the register, 82; transfers of ownership registered, 422; and manufacturers' marks issued (including renewals), 64.

SPEED INDICATORS FOR AUTOMOBILES.—PART VII.

(Continued from page 1104.)

he circular case, A, contains the copper ring, E, to instead of the centre, of it can thus be placed it now extends (Fig. 1) the dial.

Fig. 1.—The Gratz Speed Indicator (1906 Model).—View showing the instrument complete with its driving mechanism. The distinctness of the scale, and the even spacing of the divisions, are prominent in this view.

THE GRATZE SPEED INDICATOR (1906 MODEL).

IN principle, the new model of the Gratz Speed Indicator—for which the British Electric Equipment Company now have the sole agency—does not differ in any way from the previous instrument which we described in our columns on October 29th, 1904. There has been considerable modification in design, however, although externally it has much the same appearance as before.

It will be remembered that the Gratz Indicator is of the electro-magnetic type, but that it is entirely independent of electrical wires of any description both inside and outside the instrument proper. In being thus self-contained it resembles, outwardly, rather the indicators of the mechanical variety than those in which the electro-magnetic element is distinct from that portion which carries the dial. In the previous model a permanent magnet was rotated about a pivoted copper ring, in such a way as to cause that copper ring to try and revolve in unison with the magnets. The copper ring, however, was prevented from actually revolving through being anchored by a hair spring, but it was free to twist round to a certain extent, and it carried a pointer attached to its spindle, which indicated the speed of the car on a suitably arranged dial. Inside the copper ring was a stationary iron armature or "keeper," which served to concentrate the magnetism along the path intended for it.

In this year's model—illustrated in Figs. 1 and 2—the only radical change is that the armature is now rotated instead of the magnets; practically everything else—so far as the speed-indicator proper is concerned—remains the same as before.

The advantages obtained from this change are considerable, not the least important being that the permanent magnet can now be more effectively supported, since it no longer revolves, and it can, besides, be made in a shape and size more suitable to the general design of the instrument.

In Fig. 2 the latest model is shown in detail, and it will be noticed how conveniently the magnet, C,

Table of Reference Letters for the Gratz Speed Indicator (1906 Model).

A	Case.	E ³	Bracket carrying E ² .
A ¹	Dial.	E ⁴	Pointer.
B	Base plate.	E ⁵	Iridium hair spring.
C	Stationary magnets.	F	Driving spindle.
D	Revolving keeper.	F ¹	Pinion on F.
D ¹	Stationary spindle for D.	F ²	Pinion on F in mesh with D ² .
D ²	Spur-wheel on D.	F ³	Flexible tube for F.
E	Pivoted copper ring.	H	Distance recorder.
E ¹	Spindle for E.	K	Register button.
E ²	Jewelled bearing for E ¹ .	K ¹	Clamp operated by K.

Fig. 2.—The Gratz Speed Indicator (1906 Model).—Elevation and transverse section, showing the modified design, in which the magnet, C, is now stationary while the armature, D, revolves.

KLEE'S TANGENTIAL STEERING-GEAR.

THIS steering gear, the invention of Mr. H. Klee, has been designed to overcome a slight inherent inaccuracy in ordinary systems which have their front wheels interconnected by one tie-rod of definite and invariable length. These errors and their consequences were very fully explained in an article which appeared in our issue of April 23rd, 1904, and we do not purpose to deal at length with this side of the question again now. Our readers will remember, however, that when a car is

$$c = e \sin \beta$$

$$d = e \sin \alpha$$

In the above equations the value of e is equivalent to the radial length of the steering-knuckle as indicated in Fig. 1. The angle, α , is the angle which that radius, on which the particular length, d , is about to be measured, makes with the zero line; these values are marked on Fig. 2 for every 10 degrees. The angle, β , depends on the

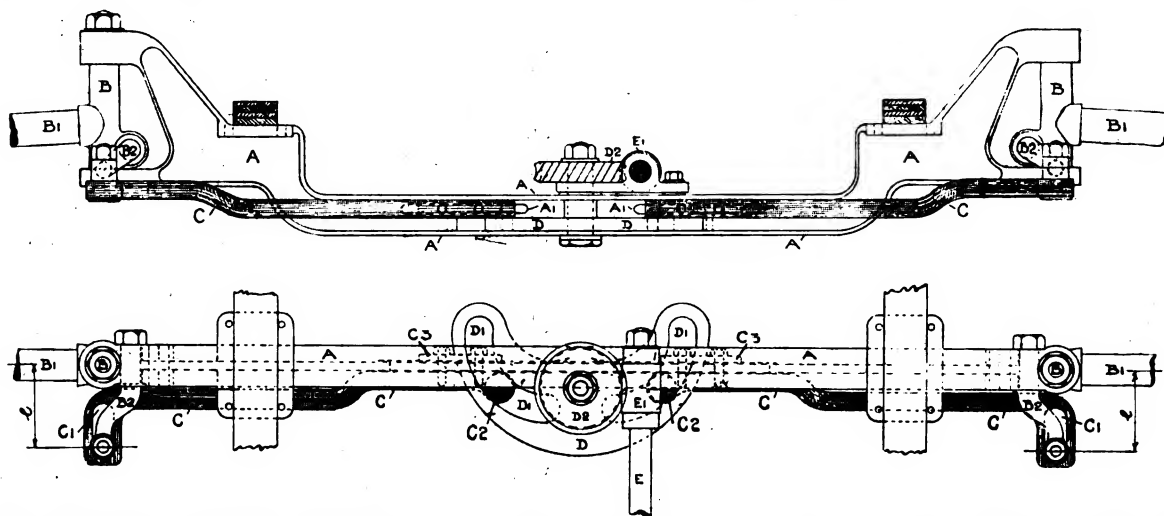


Fig. 1.—Elevation and Plan of Klee's Tangential Steering Gear, showing the arrangement of the cam-plate, D, which operates the divided tie-rod, C.

travelling round a curve, there is a risk that one or both tyres may be dragged over the ground because the two wheels are not set at the correct relative angles.

In the Klee steering-gear, Fig. 1, the tie-rod, C, is divided, and each half is independently operated by a cam-plate, D, mounted on the axle, A, and connected by a worm-gear, D², E¹, with the steering-rod, E. The tie-rods themselves are also partly mounted on the axle, in which a slot, A¹, is cut in order to form a guide for them. The manner in which they operate upon the steering-knuckle, B², of the stub-axle, B¹, is also clearly indicated in Fig. 1. The inner ends of the tie-rods are provided with small rollers, C², which engage with the cam-slots, D¹, and it is, of course, the curvature of these slots which provides the necessary correction of the previously-mentioned "errors."

A larger drawing of the cam-plate, D, is given in Fig. 2, and in this illustration the method of "setting-off" the curved slots is shown. Each cam-plate has to be designed for the particular car for which it is required, because the shape of the slots depends on the width of the track and the length of the wheel-base.

The neutral circle, a , is drawn to any convenient size on the cam-plate, and radial lines are drawn at angles of 5, 10, 15 degrees, &c., in each quadrant of the circle as shown. The centre lines, b , of the slots, D¹, pass through a series of points, situate on these radii, and the positions of the points are ascertained mathematically. The distances from the neutral circle of each point above the zero line is denoted in Fig. 2 by the letter, c , those below the zero by the letter, d . The lengths of these lines, c and d , are obtained by the following formulæ:—

angle, α , and also on the lengths of wheel-base and track of the car, its values being given by the following formula:—

$$\tan \beta = \frac{\text{wheel-base}}{\text{track} + \frac{\text{wheel-base}}{\tan \alpha}}$$

No account is taken in this formula of any effect which the distance of the wheel from the vertical centre line of the pivot, B (Fig. 1), about which it turns, may have on the amount of compensation necessary to correct the error.

From the practical point of view, the actual design of the mechanism shown in Fig. 1 has some obvious draw-

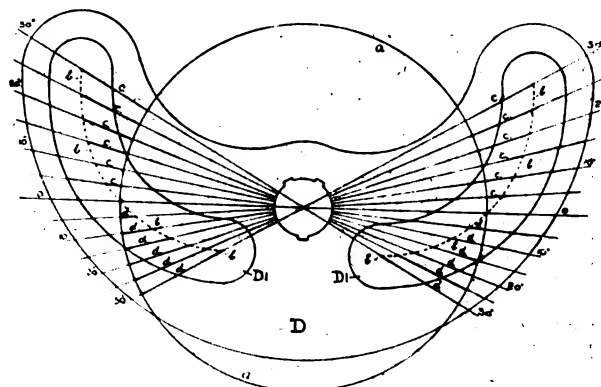


Fig. 2.—Klee's Tangential Steering Gear.—Detailed drawing of the cam-plate, D, showing how the cam-slots, D¹, are "set off" from the neutral circle.

backs which might militate against its success unless made with the greatest accuracy and with the most suitable materials. There are several places, for instance, where undue backlash would be likely to occur, and, of course, any such play would immediately neutralise the very advantages which the system is designed to give. It will be noticed, too, that the shape of the slots relatively to the fixed centre about which the

cam-plate turns, might in certain cases give trouble by being too pronounced in their curvature, and might make it difficult for them to operate the tie-rods, as also for the rods to keep steady in position when approaching the full-lock. Possibly the inherent weakness of any such system as this is the lack of any really positive mechanical connection between wheel and wheel.



LORD MONTAGU OF BEAULIEU.

THE Barony of Montagu of Beaulieu has, as the result of the death of the late peer, now devolved upon his only son who, as the Hon. John Scott Montagu, was so widely known as the champion of the automobile cause, and is universally so popular, especially in automobile circles. Everyone will sympathise with the new peer on his bereavement, and with the south of Hampshire on the loss which the district has suffered by the death of the late Baron. A younger son of the fifth Duke of Buccleuch, and raised to the peerage by Queen Victoria, he was conspicuous throughout his life in championing the rights of the people in the New Forest, and preserving many of the most beautiful and interesting portions of that great national demesne, when the Government Department, with characteristic short-sighted parsimony, proposed to deforest it. Progressive in all his tendencies, he was one of the earliest patrons of the A.C.G.B.I., and was throughout his life a continued supporter of mechanical traction in all its forms. The late Lord Montagu was a great traveller, and an intimate friend of the late Lord Salisbury and Lord Beaconsfield. The present Lord Montagu has done such yeoman service for the automobile cause in the House of Commons that it is scarcely likely he will be able to do more for it in the House of Lords, but his elevation to the peerage will certainly render him free from the anxieties of contested elections, and though he can but ill be spared from the ranks of the automobile Members of the House of Commons, he will prove a very great and valuable accession to the automobile interest as represented in the Upper Chamber, for above all he is a man of tremendous energy, and almost unequalled enthusiasm for the new locomotion, and there is little fear of his being overtaken by the lethargy which often overcomes previously active politicians when they enter the gilded chamber.

The Hon. John Scott Montagu, who by the death of Lord Montagu last week, succeeded to the title, is an apostle of the strenuous life. As one of the most energetic champions of the automobile cause, he has been a persistent and diplomatic fighter and an untiring worker.



ARMS FOR THE COUNTY COUNCIL.

PROPOSALS have been made that the County Council, as a corporate body, should assume a suitable coat of arms. It appears as yet not to have been decided whether the Council will devise arms for itself, or whether it will apply to the College of Arms for a grant. In the meantime our heraldic editor has been at work on the subject, and has devised what he ventures to think a very suitable coat, which he blazons as follows:—

Arms—Azure, a chevron, embattled, argent, between three steamboats, khaki, derelict and battered. On a chief, or, a bridge (uncrossed) between two tramcars, gules, stuffed and loaded.

Supporters—Dexter, an electrical contractor, handing out commissions. Sinister, a Ratepayer, depressed and seedy, both proper.

Motto—Dum micat sol colligo foenum. ("I make hay while the sun shines.")

Notification of Change of Address Necessary.—

Owing to the fact that his chauffeur one day last September happened to be driving his car through Battersea when the tail lamp had gone out, it was discovered that Mr. B. C. Cass had changed his address since the date on which he had registered his car, without giving notice to the local authority. He was accordingly summoned by the police on this count, and Mr. Marsham, sitting at Bow Street, before whom the case was heard on Tuesday last, decided that this constituted an offence, but as it was the first case of its kind he imposed a fine of only 10s., with 2s. costs. At the same time the magistrate said he was willing to state a case if that were desired. Mr. Amery Parkes, who, at the instance of the Automobile Association, took up the defence, appeared for the defendant.

MOTORING, SPORT AND TRAVEL.— THE VALUE OF THE AUTOMOBILE.

MOTORING, SPORT AND TRAVEL.

"WHILE proceeding towards Notre Dame du Lac Mr. Fitch saw a flock of partridges on the road ahead of him. Removing his gun from the hamper he shot several without leaving his seat behind the steering wheel." It is thus that one of the tourists on a big sporting expedition described how admirably a really up-to-date car can transport the enthusiastic stalker of game into the most out-of-the-way fastnesses. Sport is quite a different affair in the United States to what it is in this country. It is hardly possible for Englishmen to grasp how utterly isolated and apart from the stream of the world's affairs even many of the eastern parts of the United States are, and how little, in consequence, aboriginal wild life has been interfered with.

Not long ago, several prominent New York sportsmen determined to test how far the automobile could enable them conveniently to visit out-of-the-way districts, which to approach by other means would be, if not impracticable, at any rate extremely laborious, and they succeeded wonderfully. Mr. Ezra Fitch, who is a prominent member of most of the sportsmen's clubs of the Eastern States, organised and captained a sporting tour through the remote parts of Maine, and with him went Mr. Augustus Post, Mr. N. Lazarnick, Mr. A. T. Edmundson, and Mr. R. H. Johnson. The party knew they would have to traverse rough roads, and what rough roads are in the United States the European can scarcely realise. So they selected White steam cars as the most

MOTORING, SPORT AND TRAVEL.—A Canadian "Boulevard."

likely vehicles to successfully surmount the difficulties they knew they would encounter. Their confidence was rewarded, and never once throughout the most difficult and exacting country—mere woodland tracks which to compliment with the name of roads would be to outrage civilisation—were they ever left in a quandary. The three White touring cars were of the standard type, and only in one of them was the tonneau removed to accommodate the impedimenta of the exhibition, the hampers, canopy tops, and even the acetylene lights being retained. What the roads in the United States are, may be concluded from the fact that among these impedimenta were included "a road-building equipment," consisting of block and tackle, 400 ft. of strong ropes, four axes, a crow-bar, a shovel, and a mattock, and, besides these, a couple of extra springs and other parts were also carried, while, with a view to a life in the woods, there were aluminium cooking-pots, sauce-pans, plates and cups, a telescope stove-pipe, a rifle and fishing-rod for each member of the party, a quantity of ammunition, and any amount of fishing-tackle; while camping-out was provided for by a collection of air-beds and ground-clothes, each member of the party taking with him a heavy canvas kit-bag containing a sleeping outfit. The tourists shipped from New York to Portland, in Maine, where the tour proper commenced. From Oldtown the tourists ran along parallel to the Maine Central Railroad till they came to Mattawan-

kag, up to which, for America, the roads were fairly good. When this point was reached the tourists had some rather weird experiences of forest fires. A six weeks' drought had been in progress, and all the woods were like dry tinder. At one spot they encountered a place which had evidently been just vacated by a party of careless campers, who had not taken the trouble to thoroughly extinguish their fire, and the first stages of a forest conflagration were accordingly in full progress. Here the tourists spent fully an hour extinguishing the budding conflagration, and received a practical lesson in the extreme facility with which a forest fire propagates itself in dry weather, for though they apparently beat it out a dozen times, a dozen times it burst out again with renewed energy round the bole of some well-dried and hoary tree. Both on the same and the following day

a number of towns were passed which were just being completed, the new efforts in architecture being due to the fact that the former residences had all been wiped out by the forest fires of recent years. The towns and hamlets were deserted, for all the able-bodied inhabitants were out fighting the fires which were raging all round them. After passing a townlet rejoicing in the characteristic name of Braggville, the automobile sportsmen had experience of a forest fire at unpleasantly close quarters. Both sides of the road were burning, and whether they would get through or not was a very open question. However, after holding a council of war they decided to

MOTORING, SPORT AND TRAVEL.—One of the many difficulties experienced by the tourists. Clearing a forest road.

the border at Fort Kent, and, as owing to the drought, the river was unusually low, they successfully forded it on their cars, to the great astonishment of the inhabitants, who gathered on either bank to witness the extraordinary exploit. Opposite Fort Kent is the little Canadian town of Clair, and from thence they picked their way through Edmundston till they ultimately arrived at Notre Dame de Lac, where they were ferried across the Lake Temiscouata on an old-fashioned paddle-boat rejoicing in the appellation of the "Storm Hero."

It was near Notre Dame de Lac that Mr. Fitch secured several of the flock of partridges with his gun. The cars were got on board the steamboat without difficulty, but when they arrived at the other side of the lake the trouble began, for the boat could not succeed in approaching within some considerable distance of the shore. However, that was only a trifle to tourists

MOTORING, SPORT AND TRAVEL.—The value of the Automobile. Meal time.

make the attempt, and with a full head of steam successfully pushed their way through till they arrived at Patten in safety, nearly exhausted from the effects of the heavy smoke they had inhaled. The loftiest mountain in Maine—Mount Katahdin—was burning from top to bottom with the energy and abandon of a fifth of November bonfire, and the sight was one which the tourists will never forget, for they were fortunate enough to witness it during the darkness of the night.

With less danger and excitement they then traversed the high woods of Maine to such out of the way neighbourhoods that people positively asked the tourists if their cars were automobiles, and in the primeval forest at Masardis the whole party camped out for the first time, and were so delighted with their experiences over the camp fire that they all declared that "they had no further use for hotels or farmhouses." The really interesting experiences of the tour were to come, however. After leaving Masardis, the sportsmen-tourists continued their way in the direction of Portage Lake, beyond the camp at which spot their road lay through a dense forest, where they had frequently to chop away trees and branches, as shown in one of our illustrations, to get along, the difficulties being added to by the exceeding steepness or the gradients encountered. After passing the great belt of forest, they found themselves in a stretch of country in which English was an unknown language, this corner of Maine having been invaded many a year ago by French-Canadians, whom the belt of forest has completely separated from the outer world. Subsequently they crossed

who had come provided with a road-building equipment. In a very short time a rough pier was built up of logs and a gangway made along the top of it, and the automobiles run on shore. Here the party formed a camp far away from even the remotest indication of civilisation. The following day was spent in reconnoitring along the shore of the lake, and ultimately a "corduroy" road was discovered along which the steam cars laboriously made their way to Lake Touladi, where they camped and fished for several days, thoroughly enjoying the life of the wilderness.

When the tourists decided to return to Notre Dame du Lac, a scout was sent across the lake to fetch the

MOTORING, SPORT AND TRAVEL.—Two horseless carriages.

"Storm Hero" once more, after which they took the direction of the St. Lawrence River, reached the little town of St. Honoré, and passed through the province of Quebec.

The French-speaking portions of Canada through which they passed impressed the tourists particularly, as the architecture and style of the houses is quite different from anything encountered in English-speaking communities. Everywhere they were greeted with the greatest kindness and enthusiasm, though curiosity was truly rampant, the automobile practically penetrating these out-of-the-way corners of Canada for the first time.

Leaving the river near Bick, they ran through the woods, having occasion to construct extempore bridges, filling up holes with stumps of trees, and generally utilising their

MOTORING, SPORT AND TRAVEL.—A "pile" of logs.

negotiate the roads and transport the stores which the sportsmen took with them.

road-building equipment to the full. At one of their camping places during this part of the tour one of the sportsmen brought down a fine caribou which from a sportsman's point of view was regarded as forming "the climax of the tour."

The interesting result of the tour is that it really shows how valuable a car of the reliability of the White Steam car is in assisting sportsmen to get through the roughest country, at the same time carrying with them supplies and stores which it would be practically impossible to transport by any other means than the style of portage adopted in Central African expeditions. In fact, a whole battalion of carriers on foot would have been required to

MOTORING, SPORT AND TRAVEL.—The start of a forest fire.



"The Motor Academy."—Tuesday last saw the inauguration at Notting Hill of a new automobile teaching institution, "The Motor Academy," which occupies premises in Boundary Road, formerly used as a piano factory. The academy, which is especially designed for teaching the art of motor driving, is close to the Shepherd's Bush terminus of the Tube, and is accordingly readily accessible. The premises are well arranged for the purpose, being provided with a track of tarmac of 15 laps to the mile, surrounding a central expanse of asphalt on which side-slipping can be practised. All sorts of the usual artificial obstacles, comprising wooden terriers, and card-board chickens (doubtless that worse terror of the streets—the old lady with the umbrella—will be added in time), are provided to teach readiness in emergency to the pupils. In addi-

tion, the establishment includes a garage and lecture rooms. Mechanical repairing forms no part of the instruction. It purports to be a driving school especially designed for embryo amateur automobilists, though in future intending professional drivers will probably also be instructed.

MR. T. H. WOOLLEN, the honorary head timekeeper of the A.C.G.B.I., through his recent change to the control of the Clement-Talbot Works, has submitted this alteration in his position to the Races Committee of the A.C.G.B.I., and, under the circumstances, has offered to place his services at their disposal in an honorary advisory capacity. The Committee have, therefore, passed a resolution that a gold souvenir shall be given to Mr. Woollen as a memento of his period of office, with the best thanks of the Committee.

RACES, RECORDS, AND TRIALS.

THE 1906 TOURIST TROPHY REGULATIONS (SUBJECT TO REVISION).

THE provisional rules for 1906 have now been issued and are published below. It is possible the race may take place next year in May instead of September, in order to meet the wishes of the inhabitants and authorities.

General.

1. The Tourist Trophy shall be competed for between May 1st and October 1st in each year. The competition shall take the form of a race for touring cars, irrespective of country of origin, with a limited quantity of fuel, under the following conditions:—
2. The race shall be held under the Competition Rules for the time being of the club, in the United Kingdom or such other place as may be appointed by the club, and shall be organised by the club or by their nominees.
3. Cars may be entered by members of the club, of any recognised foreign or Colonial automobile club, or of any automobile club or organisation in the United Kingdom which is affiliated to the club.
4. The distance of the race, including controls, shall be not less than 150 and not more than 300 miles.
5. Cars will be required to stop and restart at certain points on the course.
6. The fuel to be used shall be provided by the club, and shall, for petrol cars, be petroleum spirit having a specific gravity of 0.695 to 0.705 at 60 degs. F. For 1906 the allowance of petroleum spirit for petrol cars shall be one gallon for every 25 miles, and of liquid fuel for steam cars one gallon for every 16½ miles, if the course be in the Isle of Man, and shall be an equivalent amount if the course be elsewhere.
7. The car completing the course in the shortest time shall be the winner, subject to compliance with these regulations, and the entrant of the car shall, on signing the bond and effecting the insurance required by the club, become holder of the Trophy.
8. No vehicle shall be driven in the race unless it conforms with the requirements herein contained.
9. The weight of the chassis shall not be less than 1,300 lbs. Accumulators and other ignition apparatus, the tyres on the wheels, the bonnet, tanks (empty), dashboard, steps, lamp brackets, and front mudguards, shall be treated as part of the chassis.
10. The load carried by the chassis, exclusive of fuel, oil and water, spare tyres, spare parts, luggage and provisions, shall be not less than 1,100 lbs., made up of:—
 - (1) The body with rear mudguards and their stays, floor boards and lamps;
 - (2) The driver and one passenger, with ballast (such ballast not to exceed 300 lbs.).
11. The chassis shall be in all respects of the ordinary touring type, and the car shall conform in all respects to the requirements of the British law. The chassis shall have not less than four road wheels. The distance between the centres of the wheels on each axle (*i.e.*, the track) shall not be less than 4 ft., and the distance between the centres of axles (*i.e.*, the wheel base) shall not be less than 7 ft. 6 ins. Efficient mudguards to the front wheels shall be fitted to the chassis. All tanks shall be fixed to the chassis and not to the body.
12. Efficient silencers must be fitted to all cars, and no form of exhaust release will be permitted.
13. The number of gears in the gear-box shall be restricted to not more than four speeds forward and reverse, except in the case of a variable speed-gear.
14. Every competing car shall be required to show that it is capable of being driven at 12 miles an hour on the level on the top forward gear and without the manipulation of the clutch.
15. Every competing car shall be required to show that it is capable of ascending a hill of 1 in 6 on the forward gear without a flying start.
16. The body shall be in all respects of the ordinary touring type, substantially constructed, properly upholstered and furnished, comfortably seated for driver and three passengers facing forwards, two in front side by side and two behind side by side, on seats at least 34 in. from the ground, with backs not less than 15 in. from the top of the cushions to the top of the back, and giving for every two seats not less than 40 in. in width between cushions. Efficient mudguards to rear wheels shall be fitted to the body. The platform behind the dashboard shall not be less than 7 ft. long, nor less than 30 in. wide, and the body shall cover this area.

The body of the car shall be easily removable by undoing not more than six bolts or hinges, and this removal of the body shall not entail disconnecting any part of the ignition apparatus, lubricating-pump connections, fuel-pipe work, or the fixings of any tank.

17. Between the start and finish of the race the driver and his mechanic only shall be permitted in any way to assist a car, and no stores, supplies (except water), spare parts or spare tyres other than those actually on the car at the start shall be taken on to the car during the race. Everything (except fuel) which is on the car at the start must be carried throughout the race.

18. No car will be allowed to start on the last round of the race within one and a half hours of the time at which the road will be opened to the public.

Entries.

19. Entries will be received by the club, at 119, Piccadilly, London, W., each year on the morning after the previous race. The holder of the trophy shall, unless he give written notice resigning the trophy, or unless he be not qualified for entering a car, be considered as having entered a car without a fee for the next race, in which he shall start first.
20. Not more than two cars by one manufacturer will be accepted. The club reserves the right to refuse any entry, and to limit the number of acceptances as circumstances may require. Subject to these provisos, entries which comply with these regulations will be accepted, and cars will be started, in order of receipt, provided always that the first entry of a manufacturer shall have priority over the entry of one of his cars by a private owner or by an agent.
21. The entrance fee shall be that which the club determines from year to year. (The fee for 1906 has been fixed at £20 per car). Entries at this fee will be received up to three calendar months before the advertised date of the race, after which the fee will increase by £2 per week up to one calendar month before the advertised date of the race, when the entries will finally close.
22. The entry fee will be returned in full if no race be held. When the entry has been accepted the entry fee will not otherwise be returnable.
23. Every entrant shall supply to the club, not later than the final date on which entries may be made, on a form to be provided by the club, a specification of the car or cars entered by him, and (if a manufacturer or dealer in motor cars) not later than seven days prior to the advertised date of the competition, a written undertaking to list and sell cars conforming in every respect with such specification until the advertised date of the next race.

Fuel Tanks and Connections.

24. Every car entered for the 1906 race shall be provided with fuel tanks of a capacity to be specified, which shall be made, fixed, and connected in accordance with the specification to be provided by the club.

Weighing and Examination.

25. The club shall appoint a place for weighing, and a day and hour prior to the race on which cars must be presented for weighing with their tanks empty. Cars shall be brought to and taken away from the weighing-station in such manner as shall be directed by the club.
26. Any loose ballast required by these regulations shall consist of canvas bags of sand containing not more than 50 lbs. each, and shall be provided by the competitor.
27. Every car which finishes the course shall thereupon be driven to the club enclosure under supervision with its full load, to be re-weighed, and fuel-tanks, water-tanks, and lubricating reservoirs shall be emptied by the club. If after the race the weight of chassis and weight of load carried respectively are found not to conform to the regulations, the car shall be disqualified. The club shall fix an hour after which no car will be received for re-weighing.
28. The club reserves the right to cut open any of the fuel-tanks, and to take such other steps as it may deem necessary to examine the fuel system of any car on the conclusion of the race. In any case, the fuel-tanks of the first three cars will be cut open on the conclusion of the race.

Road Regulations.

29. The driver need not be a member of an automobile club, but must be on the competitors' register of the club.
30. The driver and his mechanic shall be the only persons on the car during the race.

31. No competing vehicle shall be pushed or pulled over any part of the course under pain of disqualification.

32. No fuel capable of being used for the propulsion of the car in question shall be carried on the car, except the fuel provided by the club.

General Regulations.

33. In the case of a chassis or body which appears to depart from the ordinary touring type, the club reserves full powers to disqualify the vehicle.

34. A competitor by entering or by driving, thereby agrees that he is bound by the competition rules of the club and by the supplementary regulations herein contained or to be hereafter issued.

35. The interpretation of the regulations contained herein shall rest entirely with the club, which may at its discretion waive, alter, add to, or omit from, any or all of them from time to time.

If any dispute shall arise in connection with these regulations, or with the race, the decision of the club shall be final and binding, except in so far as is otherwise provided under the competition rules of the club.

36. The club reserves the right to postpone the race *sine die* if circumstances arise which, in its opinion, render such course desirable or necessary.

37. It is one of the conditions upon which entries are accepted by the club that the club shall not be responsible for any damage that may be done to the vehicle entered, or to its appurtenances, either during the race or while the vehicle is under the charge of the club, either by fire, accident, or otherwise, nor for the theft of the vehicle or any of its accessories or appurtenances. The vehicles and their accessories and appurtenances shall at all times be at the risk in all respects of the entrant, who shall be deemed by entering to indemnify the club against all proceedings, costs, and penalties whatsoever, relating to or arising out of the race.

38. If a competitor fails to comply with these regulations his vehicle shall be liable to disqualification.

39. A competitor by entering or by driving waives any right of action against the club for any damages sustained by him in consequence of any act or omission on the part of the club or of its servants or representatives with respect to these regulations, or to any matters arising therefrom.

THE Tourist Trophy Trophy for which, in the Isle of Man, so exciting a contest was run and won, concerning the corporeal whereabouts of which we recently made inquiries, is now about to materialise, and take actual, practical, tangible form. It is to consist of a silver replica of the Hermes at present in the South Kensington Museum, and is not to cost less than £250.



Motor Lifeboats.—The application of the motor to lifeboat propulsion is proceeding surely though perhaps somewhat slowly. A sub-committee of the National Lifeboat Institution, which had been appointed to consider the question, has advised that three more motors should be purchased and the Fishguard, Stronsay, Stromness, and Thurso Stations be provided with boats specially designed for the installation of internal combustion engines. Of the three motors above referred to, one is to be a 40-h.p. 4-cylinder Blake to be fitted to the Walton-on-Naze lifeboat, the second is a 24-h.p. Thornycroft to be applied to the Newhaven boat, and the third, a 4-cylinder 30-h.p. Britain, is for the Ramsgate self-righting boat. Reversing gear will be employed in each case, but reversible propellers will not be used.

The Iris Lubricator.—In describing the up-channel run of the "Iris" motor boat last week, we mentioned that Mr. Halliday, the enthusiastic navigator, was at one time compelled to sacrifice a bowl of nice hot turtle soup for the purpose of thawing his carburettor. This, as we are now informed by Mr. A. E. Perman, was a misunderstanding on our part, as the actual portion of the engine to which the fomentation of hot soup was applied was not the carburettor but the

ACRING under the resolution of the Automobile Club Committee that special awards be given to those cars competing in the Tourist Trophy race which are entirely of British manufacture, the Races Committee have resolved that only cars which completed the course shall be eligible for the special awards. The entrants of the 18 cars which completed the course have therefore been communicated with, for the purpose of ascertaining which of them claim awards on the ground of being entirely of British origin, and in cases of claims to submit evidence in substantiation thereof.

Voiturettes' Trials.—We were able last week to announce the route for these trials, taking place in Paris Nov. 21st to 27th, viz., from Paris (the Darracq Works at Suresnes) to Gaillon and back, on each of the six days' trials. The morning runs will also include a "circuit" of 30 kiloms. from Gaillon to Vironvay, making 115 kiloms. daily before luncheon, the afternoon run being direct back to Suresnes (85 kiloms.), daily total, 200 kiloms. In planning the route, it has been decided to avoid the severe Pecq Hill at Saint Germain, which at this time of the year is usually in a very bad state.

"Targa Florio."—This speed race to be held in Sicily in April or May next promises to develop into an event of considerable importance. Signor Figari has promised 30,000 francs for prizes, to which Cavaliere Florio has added 20,000 francs. The proposal is for the start to be made on the absolutely straight 6-kiloms. strip of level road skirting the sea coast from Palermo to Cefalu, and the circuit will probably be so arranged as to eliminate as far as possible all railway level crossings.

BARON DE CATERS has offered through the Academie des Sports a cup, value 5,000 francs, for competition for accessibility in all the parts of a motor. The competition is to take place and be decided during the first eight days of the Paris Salon in order that the successful manufacturers may reap the fullest benefit during the Salon of any reward which they may obtain.



lubricator in which, owing to the exceptionally low temperature encountered, the lubricating oil had congealed.

British Motor Boat Club.—The First Annual Dinner of the British Motor Boat Club will be held at the Hotel Cecil on Friday, December 1st, at which the Commodore of the Club, Admiral Sir William Kennedy, K.C.B., will preside. There will be, subsequently, an entertainment of a novel character.



MOTOR CYCLING.

THE annual dinner of the Auto Cycle Club is to take place at the Criterion Restaurant on January 17th.

THE first 100 miles trial for motor cycles under the auspices of the Auto Cycle Club is to take place about the end of January.

3½ H.P. motor cycles for 25 guineas are promised by the Rex Motor Manufacturing Company for 1906, it being affirmed by the company that these are in no way inferior to the 50-guinea machines.

THE ½rd Litre Motor Bicycle Competition at Marseilles resulted, in the final on Sunday last, in a victory for Thomas on an Alcyon machine (Dunlop tyres) with the time of 1h. 22m. 53½s. for the 100 kiloms. Capeaumont, on a Lurquin-Coudert, was 27 laps behind, Giuppone (Peugeot), 30 laps, and Colin (Magali) 32 laps.

Very few ruling monarchs of Europe are now without automobiles in, practically, daily use. One of the most enthusiastic of Royal Automobilists is King Alfonso of Spain, who usually also drives his car himself. Upon the recent visit of President Loubet of France to Spain, King Alfonso personally drove the President upon several occasions during his visit. Our photograph is a memento of one of these runs, when King Alfonso is seen at the wheel of his car with President Loubet seated in the tonneau.

Sirens and Exhaust Whistles to be Tabooed, and the "Motoring School" Question.—We are glad to see that the Motor Union, at its last meeting, unanimously agreed "that steps be taken to discourage the use of sirens and exhaust whistles in towns and populous districts." This is an excellent resolution as far as it goes, and we hope the Union will act upon it with its customary determination. The only thing we regret about it is the limitation. Both the siren and the exhaust whistle, but particularly the siren, emit howls of such a furiously exasperating character, that even in the centre of the Sahara they might be confidently relied upon to raise up an army of anti-automobilists. In respect to the use of hooters, we are glad to notice that there is a general feeling growing in favour of prohibiting the use of horns by the "boulder" cyclist, a point we have, in and out of season, advocated. Let cyclists use bells, as was their wont, and restrict the use of the horn to mechanically-propelled vehicles.

At the same meeting of the Motor Union very caustic remarks were made in regard to so-called schools for teaching motor car driving. It was (very wisely) suggested that the Automobile Club and Motor Union should jointly go into the question, and if possible determine how the matter should be dealt with in view of the unsatisfactory character of the existing automobile schools.

Civic Amenities.—When the London County Council decided to electrify the South London tramways, the *Daily Mail* criticised the policy of which this was the

outcome, and declared that the cost would be higher than the estimates, and that the estimates did not fairly disclose what the tramways were expected to cost. The same paper also pointed out that the coming of the motor 'bus would have a very serious effect upon the future of the electric tram earnings, and since that time it has occasionally criticised the policy of the County Council in regard to its very questionable speculation in maintaining a service of steamboats on the Thames. This and other allied subjects came up for discussion at the meeting on Tuesday last, when Mr. Burns, who has for some occult reason been the protagonist of the electric tram and steamboat policy of the Council, is reported to have expressed himself as follows:—

"Were they to be bullied out of their duty to the people of London simply because a paper owned by blackguards and edited by ruffians attempted to intimidate them?" (Cries of "Withdraw").

There are some people whose abuse is more flattering than the highest compliments they could pay, and we do not think we are misinterpreting the views of Sir Alfred Harmsworth if we conclude that he will regard this testimonial as one of the most satisfactory that in his distinguished career he has ever received.

A LECTURE was delivered on the 23rd ultimo at the Nottinghamshire A.C. by Professor Robinson, the Principal of the Engineering Department of the Nottingham University College, on "Motor Car Engines." The lecture was illustrated by actual working models and also by lantern slides.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

CO-OPERATE FOR MUTUAL PROTECTION.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—It is, as you know, the aim of the Automobile Association to extend its system of Cyclist Patrols to every highway in the kingdom. At first sight, this may appear Utopian, but it is not. Take the case of the services. In garrison and harbour towns it is an unwritten law that the civil authorities shall studiously avoid conflict with soldiers and sailors on leave in all matters of trivial importance, leaving Jack or Tom to the expert treatment of his comrades in the picket. My simile may be far-fetched, but I hold that speed on open country roads, being a matter of trivial importance so far as the safety of the public is concerned, it may and should be left to the no less expert treatment of trained patrols such as our organisation can establish.

Let like manage like; the method has obtained for hundreds of years in the services and it works well there. It will work even better with motoring.

An efficient system of automobile police—and we have it in embryo even now—can protect the public from the motorist and the motorist from himself. At an average cost of 2d. per mile per day, bicycles included, intelligent and conscientious men can be provided, each of whom will protect a beat varying from five to ten miles, every point and turn of which he knows by heart.

Hidden and moving dangers such as herds of cows, flocks of sheep, caravans, &c., from which the thoughtfully-placed triangle of the A.C.G.B.I. cannot always be hoped to save a driver, will be located by this wheeling policeman with advantage to all concerned. The Road Hog, abhorred as he justly is by all and loathed especially because of the social mud he scatters over his fellow drivers, will soon become extinct under the new *regime* by reason of the fact that, go where he will, his actions will be watched and checked by a controlling medium, the more implacable because it is unbiassed, the more conscientious because it is uninfluenced by profit. As the matter stands at present, the scorching fiend fears only the annoyance of a police court fine, and even this is mitigated by reflections upon the "prejudice against automobilism" which he shares equally with his gentler brethren. But let him incur uncompromising repression, let him feel that all the prejudice and all the odium is against him alone, and he will shiver in isolation, and the scorching bacillus will die.

Intelligent organisation can bring this about; therefore, let us weed our own garden. It is cheaper and far more dignified than allowing it to be done by county magistrates who may be quite competent, but certainly have no pretence to expert knowledge. Twopence per mile per day is no more than the tyre wear of one powerful car. A thousand miles of glorious open road can have efficient protection on every day in the year for two guineas per annum from fifteen hundred members, and the greater area covered the less proportionate cost.

The necessity for grasping these facts cannot be too strongly urged upon automobilists. Compared merely with the inconvenience and annoyance caused by untimely collisions with the authorities, and leaving out the matter of "financial consequences," a subscription of two guineas is almost infinitesimal.

As I have said, the scheme is not Utopian, neither is it impracticable. Let it only be borne in upon every motorist that he can no more expect to drive in districts guarded by automobile police at all but at his own expense, than he would for ever ride free on his friend's car, and the irritating regulations as to speed in safe open country can soon be rendered unnecessary.

The tradespeople, the local police, and the public generally will also benefit materially, and by virtue of this a better and proper understanding will be brought about.

Surely one *entente cordiale* is worth forty treaties.

I am, sir,

Your obedient servant,

STENSON COOKE.

Secretary, The Automobile Association,
18, Fleet Street, E.C., Nov. 3rd, 1905.

POLICE PROTECTION AND "POLICE TRAPS."

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—In your last issue you quote some remarks which I am supposed to have made, presumably, in reference to the burglary that was recently attempted at my house at Cobham. Will you allow me to say that I have made no statement whatever on the subject, and that the whole affair has been grossly exaggerated in

the newspapers. I certainly think the police would be better employed in their normal duties during the daytime than in setting traps on open roads; but I have every reason to believe that the night patrolling is done in an efficient and conscientious manner, considering the smallness of the local force, and the scattered nature of the district.

I am,

Yours faithfully,

F. P. ARMSTRONG.

Cobham.

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Triumphs of the Motor 'Bus.—Our readers are aware that 'buses belonging to the London Motor Omnibus Company have been successfully running from London to Brighton since August 30th last. The experiences have been so satisfactory that the Company has now decided to organise a regular daily winter service, and a motor 'bus will accordingly start from Northumberland Avenue every morning at 9 o'clock, returning at 9 p.m. the same day. During the winter, the tops of the 'buses are to be entirely dedicated to the transport of goods and baggage, and passengers will be confined to the inside, which will be carefully heated. 40 lbs. of luggage will be allowed free to each passenger, and the 'bus company also hopes to develop a goods service between intermediate towns and villages, as parcels weighing up to 28 lbs. will be received and conveyed to their destination for 6d. Regular stopping-places will be at Croydon, Redhill, and Crawley, though, of course, passengers can book to or from intermediate places. At present, as the speed of vehicles of the size of the motor 'bus is limited to twelve miles an hour, the journey takes four and a half hours, but should relief be afforded in regard to the speed question in the near future, as is confidently anticipated, the 'buses would be very well able to perform the journey under three hours. It is anticipated that three hundred of these 'buses will be in use before the end of next year, though of course this number will be distributed over all the Company's other routes. The motor 'bus is certainly going to be the vehicle of the future, for holidays, outings, beanfeasts, and other junketings, as it can now be hired by the day either in summer or winter. Next year it is probable that we shall see other country road services in full operation. Already the Company have successfully handled large parties for long distance journeys, taking excursions to Torquay and other seaside places, and returning to town at prearranged times. By the further developments foreshadowed in the same direction, there appears to be no limit to the ultimate usefulness which the motor 'bus and large motor cars may ultimately be shown to possess.

Glasgow Motor Car Show.—Particulars have been issued of the Exhibition which is to be held in Glasgow at the Exhibition Hall, Duke Street, from March 9th to 17th next. This hall is the largest exhibition building in Scotland, and the exhibition will be under the general management of Mr. Walter Cawood, Mr. J. Pownall-Goodhall being the secretary, with offices at 37, West George Street, Glasgow. A splendid list of honorary patrons, headed by the Duke of Argyll, is announced on the prospectus, the Honorary President being the Lord Provost of Glasgow, Sir John Ure Primrose, Bart., and the Hon. Vice-Presidents, Messrs. W. Alexr. Smith, J. R. Nesbit, and J. R. Chalmers. Under Mr. Cawood's management the exhibition should prove a big success.

TURIN Automobile Salon is announced to be held from February 3rd to 18th next.

Napier Major has during the past year had a busy season on the water, covering 8,000 miles in her travels. She was the chief object in a new form of trip last week, when she was transported by land, as seen in our photograph, from Messrs. Yarrow's works at Poplar to Messrs. S. F. Edge's Marine Stand at Olympia, where she is now having the finishing touches put to her "toilet" in anticipation of the admiring gaze of the visitors to the Olympia Show.

Olympia Motor Show.—Amongst those who have promised to be present on the invitation of the Society of Motor Manufacturers and Traders at the opening function of the Olympia Motor Exhibition on Nov. 17th are the following:—Hon. A. Stanley, M.P., Right Hon. H. A. Arnold-Forster, M.P., Right Hon. Sir John Macdonald, Sir David Salomons, Major J. Eustace Jameson, M.P., Sir Thomas Lipton, Sir Boverton Redwood, Mr. J. Bull, M.P., Sir Ernest Clarke, and Colonel Holden.

MEMBERS of the Motor Union will be admitted free to the Olympia Exhibition on Wednesday, the 22nd November, on presentation of their cards of membership for the year 1905 or for 1906. The Union will have a stand at the Show (No. 8a, close to the Prince's Rooms), where members may obtain any information, and at which non-members may be enrolled.

As a very large number of cars will be in use giving trial runs during the Show, a timely caution has been issued by the Exhibition authorities, drawing attention to the necessity for precaution in order that no complaints shall be occasioned in the locality by reason of reckless or negligent driving or discourtesy on the part of drivers. In view of the position at the present time this is a most important matter, and exhibitors are therefore requested to place these cars in the charge of their most careful drivers with such explicit instructions as will prevent any complaints arising in this connection.

THE Fire Office and London County Council rules prohibit absolutely the storage of any petrol inside Olympia whether in cars or otherwise. Consequently, petrol cars for exhibit going down by road must be *completely emptied of motor spirit* before entering the building.

On the last occasion several drivers, although informed that their petrol tanks and carburettors must be first emptied, attempted to force their way past and drive into the building, and in some cases succeeded in doing so. On this occasion it is probable that the authorities will be more strict as to the least infringement of this regulation.

EXCURSIONS from all parts of the country are being organised to London to enable visitors throughout the United Kingdom to visit the Olympia Show on November 17th to 25th.

Alcohol and Paraffin for Industrial Motors.—Mr. Dan. Albone has recently been conducting experiments with alcohol and paraffin for ploughing purposes. For this purpose special attachments were constructed for use with the Ivel motor, which was not, in itself, altered in any respect. As the results of three tests carried out with the same machine, on the same soil, and during the same day, Mr. Albone found that with 2 gallons of petrol he could plough 3 roods of land, while with the same quantity of paraffin and alcohol only 2 roods 35 poles and 2 roods 25 poles were ploughed, respectively.

Brighton to Edinburgh on Top Gear.—The famous great North Road seems likely to become a regular *pons asinorum* to the motor world, and the Belsize Company have already undertaken to negotiate the same by offering to give any purchaser of one of their 6-cylinder cars a "top-gear" run from Brighton to Edinburgh as a trial trip; in the event of failure to maintain "top gear" throughout, the purchaser to have the option of crying the deal "off."

SOME time ago, when the London County Council were promoting their Bill to bring their trams over the Thames bridges, it was decided that a *sine qua non* was that Blackfriars Bridge should be widened. The Court of Common Council, with the Lord Mayor presiding, have now decided to promote a Bill to empower them to widen the bridge to an extent not exceeding forty feet, provision also being made for curving off the bridge properly as it runs on to the Embankment. An important provision that will be enforced is that the trams when they are brought over the bridge (if they ever are) shall not stop on the bridge, nor within twenty-five yards of the ends thereof, and that the County Council shall pay an annual rent for the use of the bridge for their trams.

ON Friday of last week a dinner was given by Messrs. C. S. Rolls and Co. to Mr. Percy Northey and Mr. F. W. Royce, the amateur driver and the manufacturer respectively of the Rolls-Royce car, which secured second place in the recent Tourist Trophy Race. The Hon. C. S. Rolls occupied the chair, and the occasion was marked by several quaint little automobile conceits introduced into the surroundings of the dinner, a presentation to the two guests of the evening, and the promised unravelling of the mystery surrounding the new landaulette which the firm have determined to put on the market for 1906. The latter was, in many respects, an interesting announcement, and the particulars of this new departure in the design of the Rolls-Royce car will be found in detail in another part of the journal this week.

The other "events" of the evening were a cleverly designed menu card in the form of a full-grown motor car, the top of the canopy of which served for the menu, a goggle mask on which was indicated the seat of each guest, a mammoth ice motor car, fully illuminated, and last, but not least, the presentation to Mr. Northey and Mr. Royce of two large silver cigar boxes and two enlarged photographs of Mr. Northey in "war paint" on the successful Trophy car—altogether a pleasant little series of episodes. Startling and mysterious was the bringing in, immediately after nature's requirements had been satisfied, of two closely-veiled easels, which proceedings were followed by the assembled company with keen curiosity, mixed with just a touch of hushed awe, at the thought of what might be in store for them. These, however, turned out subsequently to be, at the wave of the magician in the chair, no more fearsome than the aforementioned presentation photographs.

Mr. Royce, in response to the praise of Mr. Rolls for having produced so fine a car as the Rolls-Royce, modestly protested that all he had done was to put a few pieces of metal together for Mr. Northey to risk his neck upon. Mr. Northey was equally emphatic in reply in putting the blame on Mr. Royce for his having done so well in the race. Said Mr. Northey, it was the most monotonous drive he ever had—he simply pressed the button, and Mr. Royce did the rest. The fact that he, an amateur, had been able at a moment's notice to drive the car through a non-stop run, was due to the excellence of the work put in by Mr. Royce, his skill in driving being merely an item in the scheme. And so with the toasts of "The Press," by Mr. Claude Johnson, and "The Guests," by Mr. Rolls, concluded well before 11 o'clock, a very enjoyable function, remarkable for its short and pithy speeches, and various delicacies dis-

guised by the *chef* under names appropriate to the occasion, of which the following effort was the most noticeable: *Supreme de sole à l'Épingle à Chevaux*.

MR. STEPHEN COLERIDGE has been having some more fun at the expense of the great unpaid and the police. He was recently summoned to appear before the Brentford magistrates, but, being unable to attend, sent the following letter by his chauffeur, which the latter read out in open court:—

On the 13th of October, towards nightfall, I was proceeding in my automobile along a lonely stretch of road in the neighbourhood of Norwood, when I was stopped by three highwaymen, who sprang out of the hedge, where they had been lurking.

They were armed with stop-watches, and I had no weapons or defence, and no means of refuting anything they might say or do then or to-morrow. The gentlemen of the road performed their violent interruption of my peaceable journey with the gay courtesy of their classic forerunners, and we quite expected P.C. Richard Turpin and P.C. Claud Duval to insist on the ladies of my party descending to tread a measure with them in the mud.

I am told that the roads round Andover have become so dangerous to travellers in automobiles that the town is practically deserted, and the inhabitants are taking serious steps to clear the road of these footpads and restore the traffic.

Perhaps at Brentford, however, there are some enterprising inhabitants who are glad to be quit of these dangerous characters, who now spend the livelong day in ditches by lonely roads watching for defenceless tourists.

The reading of this letter was at once followed by a conviction, the magistrates telling the chauffeur to inform his master that he would be subjected to the full penalty of £10, the case being merely formally adjourned in order that previous convictions might be proved against him. It is perhaps well for Mr. Coleridge that it was not the Steyning Bench before which he was summoned, as in that case, probably after the reading of his letter, a warrant would have been issued for his arrest.

APROPOS of the recent inquest held by the City Coroner, Dr. Waldo, into the Cornhill lorry fire, our attention has been drawn to the importance in such technical cases of adequate provision for the calling and examination of expert evidence being provided in future. The Coroner's Court has no machinery for dealing with what may be termed "technical fires," that is to say, fires in which the evidence in regard to their origin is likely to be of a highly technical character. With the growth of industrial development, it is obvious that the need for this want being supplied becomes more and more pressing.

THE police are not always, it seems, as amenable to the wishes of the authorities who are supposed to, or should control them, as is supposed. Only when these authorities are thoroughly reactionary do the police appear to work in perfect harmony with them. This, at least, is the conclusion which is naturally to be drawn from the situation prevailing in Lancashire. The chairman of the Main Roads Committee of the Lancashire County Council, at a recent meeting, referring to motor traps, said he had expressed a strong opinion to the Chief Constable that police supervision of the road should be concentrated on villages where human life is likely to be endangered, instead of setting traps on isolated stretches of road. The annunciation of this sentiment evoked loud applause, but the Chief Constable, it was stated, had replied that while the speed limit was in force he could not neglect it, but, at the same time, he would in future pay more attention to the frequented and populous parts. Let us hope, therefore, that he will not have sufficient police available for both.

The unique motor car menu card and guests' mask which formed one of the little surprises at the Rolls-Royce dinner last week. The top of the canopy of the car formed the menu.

A J

One of the latest cars of the Germain Company is seen in our photo above. It is a 24-32-h.p. Tonneau Royal with cape-cart hood. This carriage is particularly well designed and is a striking example of a luxurious vehicle. A supplementary seat is supplied for the chauffeur, over the tool-box and the trunk holder, at the back of the carriage.

A St. Neots Gem.—There may be ingenuous individuals who believe that the things automobilists and the automobile Press say about police evidence are exaggerated. Many people have been brought up to believe that the constable, village or other, is a blue-coated embodiment of absolute truth. It is a poetic conception, but like many other poetic conceptions, it is but remotely connected with facts as will be admitted by all who have experience of proceedings at the notorious St. Neots Police Court. Within the region over which that august tribunal exercises its Rhadamanthine sway is situated—in the village of Buckden—a police trap, or if we adopt the most recent nomenclature, a motor car trap manned by policemen.

Through this contrivance recently proceeded the automobile of Mr. J. B. Allpass. The chauffeur was alleged to have driven to the public danger, and to have refrained from stopping when a policeman held up his hand for the purpose of inducing him to do so, though apparently the summons which was served upon him only mentioned the latter offence. There was little traffic at the time, the whole of it consisting of one

wagonette, three cyclists, two women, and some men. As evidence of the dangerous manner in which the motor car was driven, the coachman of the wagonette was produced, who declared on oath that the car passed only 10 ins. from him. The police subsequently swore that they had examined the wheel tracks of the wagonette and the motor car, and measured the distance between them on the road, and that the distance between the wheel tracks was exactly 10 ins. This was most remarkable, for the automobile was provided with dust-guards extending a full foot on either side of the wheels, and the axle-box of the wagonette also extended ten inches on either side of its wheels. If, then, the police declaration (on oath) were the absolute

undiluted truth, either the wagonette ought to have carried away about twelve inches of the motor car, or the motor car have removed about ten inches from the wagonette. Neither of these phenomena are mentioned, however, and we are reluctantly forced, therefore, to the conclusion that the police have, in a manner not altogether unusual in the force, been *economising* the truth. No clear signs, it would seem, as required by the Act, were made by the policeman, and when the occupants of the car passed him, they merely thought he was jumping about, either for the purpose of relieving his feelings, or with a view to inducing circulation. At any rate, he never distinctly held up his hand. Though all these points were brought out in evidence, and enforced in a lengthy and eloquent speech by the solicitor for the defendant, the Bench (as might have been expected by those familiar with St. Neots) fined the unfortunate chauffeur £8 on the one count and £4 on the other. Mr. Clark, solicitor for the defendant, vainly appealed to Quarter Sessions precedents to show that where danger to the public is alleged, such danger must be proved. The St. Neots magistrates were far above considerations of that kind, and said that they were not bound by Quarter

Considering that the Tyres shown in the above photographs have already run a distance of 3,445 miles throughout England and Scotland, it will be noticed that they show practically no signs of wear. Not only does this speak remarkably well for the tyres which are now being turned out by the Dunlop Company, but, as Mr. S. F. Edge justly contends, it is a convincing proof of the good all-round design of the car using them. The dimensions of the tyres are 810 and 90 mm., while the car, which is one of the new 18-h.p. "Regents," weighs about 19 cwt. without passengers.

The London and North-Western Railway Company last month commenced running a service of motor omnibuses, one of which is seen in our photo, between Holywell Station and Holywell Town, North Wales. The town, $1\frac{1}{2}$ miles distant, is on the side of Halkyn Mountain, 550 feet above the railway station, so that the motor omnibuses have some heavy collar work, parts of the road being as steep as 1 in 9. The experiment is proving very popular, as the 'buses are nearly 15 minutes quicker than the horse vehicles hitherto plying between the same points. The new service is expected to bring a great many visitors and pilgrims to St. Winifred's Well, which has been noted for over twelve hundred years for its healing properties. The omnibuses meet every train at the station, and make 18 journeys daily to the town and back.

Sessions decisions. Alas, they are not, or by anything else, apparently, but their miserable contempt for fair play and the elementary principles of justice. When the case was practically over, the Chairman of the Bench recalled a policeman, and asked him the following questions:—

"Were you stationed at your usual place?"—

"Yes, sir."

"Did you make the usual signal to stop?"—

"Yes, sir."

"Is there any difference between this case and the others you bring before us?"—"No, sir."

If, in addition to all this, it were true, as we are at present advised, that the defendant was only summoned on *one* count, but convicted and fined on two, the situation amounts to a very grave judicial scandal.

One cannot help calling to mind a story of the earlier days of the "great unpaid" before the motor car had come to muddle the contents of their crania. It was at a Derbyshire Petty Sessions Court. A rustic had been proved to have committed the grossest cruelty to a dog by sticking him through and through repeatedly with a pitchfork. When the whole case was over and it was expected that the magistrates would give their decision, the chairman, who was very much against the dog, recalled one of the witnesses and solemnly asked him, "Do you think this treatment *really* hurt the animal?"

MESSRS. LEGROS AND KNOWLES, LIMITED, are not only thorough in their engineering undertakings, as witness the cars which they have already marketed, but are equally pre-eminently "at home" when dispensing hospitality to their many business friends. A delightful evening was arranged last week at the Hotel Cecil, when the new features of the Company's cars for 1906 were fully explained and illustrated. In addition to the valuable experience and skill of Mr. L. A. Legros and Mr. G. J. F. Knowles, the firm have with them another mainstay in Mr. I. de Havilland, who has been associated with the Daimler Motor Company as designer. It was news to many of the uninitiated that the firm are well forward in the manufacture of an "all-British" motor 'bus chassis, which, like the rest of their "confections" has been undergoing every possible test and trial, so that it shall not be found "wanting," before being placed on the market. A goodly company was keen in appreciating the many excellent points of the cars, all of which are dealt with by us in a special article which appears in the current issue. The speeches, for the most part, were short and witty, whilst a well chosen little band of entertainers, between speeches, made the time pass too rapidly, and the evening all too short. Mr. A. E. Perman, as

one of the vice-chairmen, was throughout watchful that the enjoyment of the firm's guests never flagged. A very practical innovation was placing one of the new engines and the gear-box on view in the reception room for inspection.

In our issue of October 14th, we announced the important move which was being made by the Sirdar Rubber Company in securing large mills at Bradford-on-Avon. We are this week able to give the above photo of this new acquisition. The mills are freehold and cover over six acres of land. The Company's old mills are still working day and night, and although they have been built on to, they are unable, we learn, to supply the demands for the Company's tyres.

BIRMINGHAM Motor Exhibition for 1906 will again be held at Bingley Hall from January 19th to 27th, Mr. Walter Cawood again being responsible for the general managership. We understand that already a number of important manufacturers of British and foreign cars have secured places.

THE motor omnibus service which is running between Haslemere and Farnham should be a "boon and a blessing" to golfers who make the new links at Hindhead, opened by that good motorist, Sir Arthur Conan Doyle, last week, their particular haunt, as these omnibuses pass the door of the club house.

IN a novel form a series of very interesting articles on tyres are appearing in *The Times* each week. The first three appeared on October 20th, 27th, and November 3rd respectively. The Michelin Tyre Company are responsible for this series, in which many historical facts and practical data are brought out, recalling pleasant memories of the past.

MR. W. M. LETTS, who has just arrived back from the "States," reports having put through, in connection with the De Dietrich firm, the second biggest deal in automobiles in the United States. Things automobile in America, he thinks, look healthier than they ever did before, and the good work done by the National Association of Automobile Manufacturers is having an excellent effect.



BRITISH EXPORTS AND IMPORTS OF MOTOR CARS, &c., FOR 1905.

NOTE.—For 1904 comparative figures see full table for the year in our issue for January 21st, page 91.

Imports.

1905.	No. of Cars and Value.	Parts Value.	No. of Motor Cycles and Value.	Parts Value.
January ...	362	£ 149,578	57	£ 1,842
February...	431	195,978	102	3,748
March ...	560	239,091	152	5,369
April ...	544	225,012	192	6,477
May ...	728	327,008	280	8,274
June ...	557	259,359	211	6,581
July ...	675	277,738	212	6,931
August ...	505	230,568	116	3,912
Sept. ...	399	160,318	73	2,586
Oct. ...	259	105,182	92	2,911
Total ...	5,020	2,169,832	1,487	48,631

COMPANY DOINGS.

Daimler Motor Company (1904), Limited.—The directors, in their report for the year ended September 30th, state that the net profit for the year, after provision has been made for debenture interest, depreciations, and all charges, amounts to £83,167. Deducting interim dividend on 64,200 preference shares (10s. paid) at the rate of 6 per cent. per annum (£963), there remains a disposable balance of £82,204. Out of this balance the directors propose to write off preliminary expenses £1,257, to transfer to reserve £30,000, to pay a balance dividend of £963 on the preference shares, and a dividend of 6 per cent. on the ordinary shares (£3,736), free of income-tax, and to divide the surplus available for dividend equally between the shareholders as provided in the articles of association (£4,982), carrying forward a balance of £41,264. With the approval of the shareholders, a reconstruction scheme was carried out in the autumn of 1904, and a new company, called the Daimler Motor Company (1904), Limited, was registered on November 19th, 1904, with a capital of 100,000 ordinary shares of £1 each and 100,000 6 per cent. cumulative preference shares of £1 each. The debenture stock (£60,000) issued by the old company was taken over by this company.

The shareholders of the old company received 62,269 fully paid ordinary £1 shares in the new company.

Out of an issue of 75,000 preference shares, 64,200 were subscribed for, and 10s. per share has been called up.

In September, 1905, the negotiations which had been going on for some time with the Motor Manufacturing Company were brought to a conclusion. All the leases held by that company were surrendered, and this company reacquired the buildings and land which were in 1897 sold by the Daimler Motor Company to the Great Horseless Carriage Company, the predecessors of the Motor Manufacturing Company. This company at the same time purchased the greater part of the plant and machinery belonging to the Motor Manufacturing Company. The debenture stock has been reduced from £60,000 to £49,800 by the purchase of £10,200 stock, which has been handed to the trustees for the debenture-holders and cancelled. The exceptional success of the company's cars during the past season has, state the directors, fully proved their excellence and superiority, and has largely contributed to the great increase in orders and sales and the satisfactory results shown in the balance sheet.

Humber, Limited.—The profit of Humber, Limited, for the year ended 31st August, amounts to £6,537, and £3,334 was brought forward. There is an available balance of £9,872. The directors state that the cycle sales have largely increased, and that profits show a marked improvement. The motor trade has also been good, and the directors regard the future very hopefully.

AMONGST recent purchasers of Simms-Welbeck cars is Lord Glerawly, who has lately become the owner of one of the handsome 20-24-h.p. cars made by the Simms Manufacturing Company.

CONTRARY to the original intention of the Continental Tyre Company, they have now decided not to hold a tyre-fitting competition at the Olympia Motor Show. They anticipate a very large number of visitors at their stand, and consider that the holding of this competition might interfere with the course of business.

1905.	Exports, British and Irish make.				Foreign and Colonial Re-exportation.			
	No. of Cars and Value.	Parts Value.	No. of Motor Cycles and Value.	Parts Value.	No. of Cars and Value.	Parts Value.	No. of Cycles and Value.	Parts Value.
January ...	77	£ 25,590	58	£ 2,026	50	£ 19,006	8	£ 214
February ...	62	20,209	63	2,389	79	39,772	2	54
March ...	49	14,749	46	1,471	36	20,783	14	290
April ...	55	16,590	46	1,459	38	19,697	8	369
May ...	55	15,670	60	2,181	17	8,572	1	60
June ...	59	16,797	83	2,286	20	11,491	17	512
July ...	59	23,295	52	1,791	50	15,419	6	177
August ...	88	33,239	64	2,177	75	40,362	3	105
Sept. ...	129	47,110	52	1,795	58	29,686	2	110
Oct. ...	157	57,793	41	1,543	68	26,001	24	698
Total ...	790	271,042	565	19,119	491	230,789	85	2,589

NEW COMPANIES REGISTERED.

[Taking powers to manufacture or deal in motors, motor cars, or accessories, either as their principal or part of their objects.]

British Empire Motor Trades Alliance (Limited).—Registered, with 250 members, each liable for £1 in the event of winding up. The management is vested in a committee.

British Motor 'Bus Trust (Limited).—Capital, £105,000 in 100,000 "A" shares of £1 each and 100,000 "B" shares of 1s. each.

Cremorne Motors (Limited), Cremorne Motor Works, Lots Road, Chelsea, S.W.—Capital, £30,000 in £5 shares (2,000 six per cent. cumulative preference). Object, to acquire the business carried on by A. E. Dobbs, at the Cremorne Motor Works, Lots Road, Chelsea, as the Cremorne Motor Manufacturing Company. First directors: A. E. Dobbs, W. East, J.P., and A. F. Dobbs.

Fitzgerald Tyre Syndicate (Limited), 192, Goldhawk Road, W.—Capital, £10,000 in £1 shares. Object, to acquire the patents for a pneumatic tyre for motor vehicles, &c. First directors, J. H. Fitzgerald (permanent), P. B. Marshall, and F. Humphries.

P.M. Electric Manufacturing Company (Limited).—Capital, £2,000 in £1 shares. Object, to carry on the business of manufacturers of electrical apparatus, sparking plugs, induction coils, &c. First director: P. Baxter (permanent).

R. Reynold

13, High Street,
(4,900 "A" and
on at Notting H
mechanical engineers, manufacturers of and dealers in motor cars.

The Glasgow Motor Tyre Company (Limited).—Capital, £2,500 in £1 shares. Object, to acquire and carry on the business of the Glasgow Motor Tyre Company, 71, Waterloo Street, Glasgow. (Scotch company).

BANKRUPTCY COURT.

BEFORE Mr. W.
of creditors was held
Dickerson, describe

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Mobile. That att
started the *Motor*
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and the value of hi

The debtor subm
official receiver's hands.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

22059. 13th October, 1904. Improvements in Oil and Spirit Explosion Engines. Frederic Bamford, 97, Shaw Heath, Stockport, Cheshire. This invention relates to oil and spirit engines of the two-stroke cycle type. There are four figures. Fig. 1 is a sectional elevation; *a* is the engine cylinder provided round its upper part with a water jacket, *b*. An annular chamber, *c*, is provided round the lower part of the cylinder, and this annular chamber communicates at one point, *d*, with the crank chamber, *e*. The connecting rod, *m*, is made hollow and of considerable size, and it connects the piston, *n*, with the crank pin, *o*. The carburettor, *p*, is connected to the annular chamber, *c*, by a pipe, *q*, on which is placed a non-return valve, *r*. During the upward or inward stroke of the piston air and fuel are drawn from the carburettor or vapourised into the annular chamber, *c*, and through this chamber into the crank chamber, *e*. At the same time additional air is drawn past the valve, *s*, provided on the pipe, *t*, into the top of the annular chamber, *c*, on the other side

projection or directing plate, *x*, is formed on the top of the piston, so as to direct the entering fluid upwards, and reduce the amount of mixing between this entering fluid and the products of combustion from the last explosion. The air and fuel get heated in the annular chamber, *c*, most of the charge passing through this chamber twice, and the mixing of the petrol is made more complete than it would otherwise be. An advantage of this arrangement is that when desired a weaker charge can be fired in the cylinder than would otherwise be possible, owing to the mixture at the instant of ignition being comparatively rich at the top end of the cylinder and comparatively poor at the bottom end of the cylinder. This is due to the fact that almost pure air enters the cylinder first, sweeps up to the top of the cylinder, and is then displaced to the bottom of the cylinder by the succeeding fluid which is rich in fuel. It is desirable that the crank chamber, together with the annular chamber, *c*, should have a volume bearing a certain proportion to the volume of the cylinder swept by the piston. In order to get this volume a hollow connecting rod is used, built up of two parts, of aluminium or some other light material. This bulky connecting rod occupies a considerable

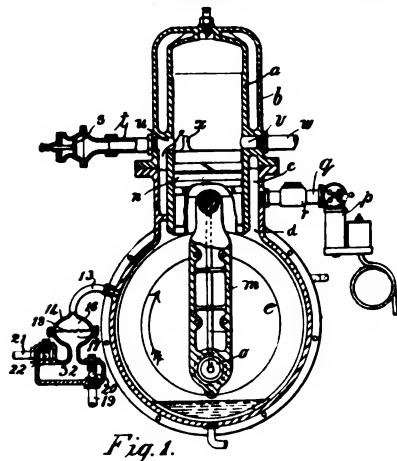
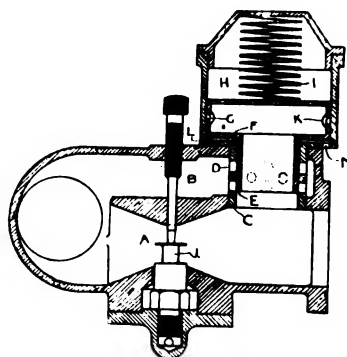


Fig. 1.

of the cylinder. The port, *u*, putting the annular chamber, *c*, in communication with the interior of the cylinder is at this instant closed by being covered by the piston. On the downward or outward stroke of the piston pressure is exerted on the fluid contents of the crank chamber, and when the piston uncovers the port, *u*, at the end of its downward stroke, and at the same time uncovers the port, *v*, putting the cylinder in communication with the exhaust pipe, *w*. Air and fuel are forced from the annular chamber, *c*, through a port, *u*, into the cylinder. The first fluid to thus enter the cylinder will be pure air or almost pure air, owing to the manner in which the pure air and the air charged with petrol are drawn into the annular chamber and into the crank chamber. A

amount of the volume of the crank chamber. A pipe, *13*, leads from the crank chamber to the diaphragm pump, *14*. The diaphragm pump consists of a vessel having two chambers *15*, *17*, separated by a flexible diaphragm, *18*. The upper chamber, *16*, is in communication with the pipe, *13*, while the lower chamber *17*, is in communication with a valve chamber, *32*. A pipe, *19*, communicates with this chamber, *32*, past a ball valve, *20*, and another pipe, *21*, communicates with the valve chamber past a ball valve, *22*. The pipe, *19*, leads from a water tank, and the pipe, *21*, leads to the cylinder jacket. The upward strokes of the piston draw water into the valve chamber, *32*, and the downward strokes force this water into the cylinder jacket.—October 13th, 1905.



Patent Specifications Published

Applied for in 1904.

Published November 9th, 1905.

- 22,168. H. J. E. A. ROCHE. Boilers for instantaneous vaporisation.
- 22,261. A. VOLKER AND W. PRUGEL. Explosion engines.
- 22,684. G. HILL. Radiator.
- 22,894. F. G. McKIM AND J. M. LENNARD. Pneumatic tyres.
- 24,725. F. W. LANCHESTER. Motors and driving gear.
- 24,981. A. SHARP. Motor cars and tricycles.
- 27,499. G. PERRUCHON. Wheels.
- 27,735. J. E. GIBBS AND F. H. SHEEPER. Fluid pressure motor and generator system.
- 29,506. E. LEHMANN. Clutch.

Applied for in 1905.

Published November 9th, 1905.

- 115. G. H. MANN. Wheels.
- 1,644. W. J. DAVY. Steam automobiles.
- 2,207. J. H. MANN and others. Heavy motor cars.
- 2,731. F. P. HUMMEL. Stantaneous steam generators.
- 3,572. C. JOLY AND R. BOUCHER. Non-skidding tyres.
- 4,028. W. H. MARCH. Cooling cylinders.
- 4,468. H. GILARDONI AND H. LERICHE. Elastic tyres.

The Automotor Journal, November 18th, 1905.

THE AUTOMOTOR JOURNAL

A RECORD AND REVIEW OF APPLIED AUTOMATIC LOCOMOTION.

Circulates amongst Makers and Users of Motor Cars, Cycles, etc., in the United Kingdom, the Colonies, and the Continent.

Offices: 44, St. Martin's Lane, London, W.C.

No. 254. (No. 46, Vol. X.)

NOVEMBER 18TH, 1905.

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as a Newspaper.

[Weekly, Price 3d.
Post Free, 8td.]

During the past season, the Great Eastern Railway Company, as we have recorded, have put quite a number of motor omnibuses upon various routes connecting up their railway system with points of interest and some pleasure resorts lying outside easy access of their railway stations. These omnibuses have all been built by the Great Eastern Railway Company at their Stratford works, and have proved eminently successful in their running, although in some cases the patronage accorded them has not justified their continuance throughout the winter. Our photograph above shows one of these omnibuses which has been running regularly between Clacton-on-Sea and St. Osyth, one of the best known historical villages in the county of Essex. St. Osyth Priory, which is one of the show places of the district, is the residence of Sir John R. Johnson.

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NOTICE.—Advertisement instructions should reach the office, 44, St. Martin's Lane, W.C., by first post, Wednesday. The latest time for receiving small alterations for Advertisements is 12 noon, Wednesday. No alterations can be made after that hour.

DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Nov. 22, 29,	Practical Lessons on Motor Cars (Ladies' Dec. 6, 13 A.C.).
Nov. 17	*Quarterly 100 Miles Trials.
Nov. 17-25	Society of Motor Manufacturers and Traders Exhibition at Olympia.
Nov. 17-25	Stanley Show.
Nov. 22	Motor Union Annual Dinner, Trocadero.
Nov. 24	A.C.G.B.I. Annual Dinner, Hotel Cecil, 8 p.m.
Nov. 25	North London A.C. Annual Dinner.
Dec. 4	"Explosion and Flame in Relation to Motor Car Engines," by Dr. W. R. Ormandy (Manchester A.C.).

1906.

Jan. 17	Auto-Cycle Club Dinner.
Jan. 19-27	Birmingham Motor Show.
Jan. 26-Feb. 3	Crystal Palace Motor Show.
Feb.	*Tyre Trials.
Feb.	*Lamp Trials.
March 9-17	Glasgow Motor Car Show.
March 24-31	Cordingley and Co.'s Motor Shbw.
Aug.	*Van Trials.

Foreign Events (Trials, Races, &c.).

1905.

Nov. 14-18	Sydney-Melbourne Trial.
Nov. 21-27	French Voiturettes Trials (L'Auto).
Dec. 3	Coupe de Salon, Paris (Motor Boats).
Dec. 8-24	Paris Automobile Salon.

1906.

Jan. 13-20	Brussels Exhibition.
Jan. 13-20	American A.C. Show, New York.
Jan. 17-20	Western Indian Trials.
Jan. 22-27	Ormond-Daytona Beach Races.
Jan. 26-30	Calcutta Motor Trials.
Feb. 3-18	Berlin Motor Show.
Feb. 3-18	Turin Automobile Show.
April 1-15	Monaco Motor Boat Exhibition and Races.

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

The Olympia Exhibition.

IN recent numbers we have referred to the Automobile Exhibition at Olympia which has now opened its doors. This year's Exhibition provides, as everybody expected it would, a record both as regards the number of exhibits and the number of exhibitors, while, as we have previously remarked, a magnificent testimonial to the importance of the English automobile market is provided by the presence of a large number of the 1906 models of leading foreign firms—in spite of the Olympia Show preceding the Paris Salon. There is, therefore, special appropriateness in the fact that King Edward has this year, for the first time, accorded his exalted patronage to the Exhibition.

The Exhibition provides the most satisfactory evidence of the vitality of the automobile industry, particularly in this country, for though types of cars are becoming more and more standardised, there is an equally noticeable display of originality, both as regards engineering details and general design, and a very large number of entirely new models are on view. There is not the slightest indication consequently of any approach to rigid uniformity or stagnation of inventive faculty.

The unprecedented number of the exhibits renders it

impossible for us to deal adequately with more than comparatively few this week, and we have not made any attempt to provide an *olla podrida* of details culled from various sources in advance, since such a proceeding is, in our opinion, worse than useless. With all the more representative types of car, however, we now commence, and will continue in subsequent issues, to deal succinctly but with comprehensive, and as we hope characteristic, thoroughness.

For the benefit of visitors to the Exhibition we are, however, providing a table in this issue which we have compiled from the data with which we have been specially furnished by the exhibitors. It gives in tabulated form all the important elements of practically every car—grouped primarily according to the number of cylinders, and arranged secondarily in their natural order by price. This classification and arrangement will, we think, enable anyone to find the precise type of car that he requires, for it is only necessary for him to glance at the table and he will be at once able to note the numbers of the stalls at which cars of the kind can be seen. Once the numbers are known, the diagrammatic plan that we also give, on another page, will be found to indicate the position of those stalls in the building. This simple arrangement will, we venture to hope, save visitors a lot of time and trouble in finding among the exhibits exactly what they want, and will at the same time be productive of beneficial results to exhibitors, as it will enable intending customers to get into touch with them with the minimum of fatigue and delay. We also give an alphabetical list of the exhibitors denoting the numbers of their stands.

An Apology and a Doubtful Policy.

INDULGENCE is asked, however, both from our readers and from a few stand-holders at Olympia in regard to the list of exhibitors and the diagrammatic plan of the positions of the stands, which are given by us in our present issue. Owing to official objections to providing the Press, as on former occasions, with correct plans and accurate lists of exhibitors, we cannot guarantee that our list of exhibitors and the exact position of every stand in the hall is *officially* complete. As far, however, as it has been, under the circumstances, possible, we have done our utmost to make it reliable, and any omissions there may be, will, we believe, be found to be comparatively trifling. We learn that the official decision is due to the facilities granted to the Press last year not having been used in quite a legitimate manner in the Exhibition buildings, with the result that there was very considerable irritation and the sale of catalogues was prejudicially and unfairly affected.

We hardly think, however, that an exhibition is primarily organised for the purpose of bringing out a catalogue. We have generally understood that shows are arranged to enable the exhibitors to transact as much business as possible, and everything that tends to that end should surely be encouraged.

Of course, if the members of the Society of Motor Manufacturers and Traders, as a whole, desire to limit publicity, and to only allow the numbers and positions of their stands to be buried and hidden away among the voluminous pages of a catalogue, it is for them to decide the question. Their friends, however, and others seeking to do business with them, may thereby have considerable difficulty in ascertaining their whereabouts, and there is more than a possibility of valuable business either being altogether lost or transferred to somebody else, who has been fortunate enough during the buyers'

exploring rambles to "block the way." But this is hardly what is sought. In fact, whatever the Society as a whole may wish, we have found the individual members, and other exhibitors, of a very contrary way of thinking, as in nearly every case there has been a readiness in supplying the information asked for, in marked contrast with the official view adopted by the Society. We cannot regard it as wise to risk the curtailment of business generally at the exhibition out of anxiety lest the sale of a few dozen catalogues might be jeopardised.

Hitherto it has generally been customary with most trade exhibitions, to regard the publication of such information as widely as possible, as of the first importance—in fact, as a rule, full plans, list of exhibitors, &c., are furnished at the earliest possible moment in advance, to induce that very publicity which is rightly regarded as of the utmost importance to the general success of the show. To suppress or unduly limit this publicity, for the sole object of possibly selling a few extra catalogues, which, as a rule, are as incomprehensible to the average visitor as "Bradshaw" to the average traveller by rail, argues, to say the least of it, a want of due sense of proportion.

At the same time, we quite understand that any little privileges accorded by the management for mutual and general good should only be used legitimately, and not abused. But this is a side of the question which should be easily dealt with by the officials on the spot.

A Board for London Traffic.

FOLLOWING upon the report of the Commission on London Traffic, and the publication of the voluminous evidence which the Commission has just put before the public, it is satisfactory to be able to record that the Government have determined to bring in a Bill, presumably at an early date, to establish a Central Traffic Board which shall have the control and co-ordination of all the means of locomotion employed in the Metropolis. It is suggested that the proposed Board should sit permanently, in fact, it is probable that it will resemble in many respects the Local Government Board, and will have under its management or consideration :—

The preliminary examination of all private Bills dealing with locomotion in Greater London.

The improvement of the main roads leading out of London.

The Building Laws as affecting districts not yet built over within the area of Greater London.

The revision and amendment of the laws regulating the breaking up of the streets.

The consolidation and amendment of the laws affecting traffic.

We, of course, do not expect even the ~~creation~~ of such a Board to suddenly introduce order amid the chaos under which the Metropolis has groaned for so long, but the recognition by the Government of the pre-eminent need of a Board whose sole business is to deal with traffic, even if at present only with the traffic of the Metropolis, is an excellent precedent, and encourages us to hope that the whole traffic of the country, and particularly the management of our main roads (as we have always advocated), may ultimately be placed under the supervision of some such central authority.

Materials that Automobile Engineers ought to Watch.

NEARLY every improvement in the manufacture of steel—at any rate, every improvement which has the effect of increasing the strength of that material—is of the highest interest to automobile engineers. For increased strength of material means placing at their

disposal the ability to construct cars of increased power at the same weight or diminished weight for the same power. From this point of view we have in the past devoted a certain amount of consideration to the qualities of nickel steel which render it so valuable a material for the structure of all those parts of a modern automobile, such as crank-shafts, connecting-rods, and valves, which are subjected to severe demands. Recent progress in the metallurgy of steel leads to the conclusion that the alloys of steel with tungsten or wolfram (which are two different names for the same metal) promises to provide a material which for constructional purposes will considerably outclass even nickel steel. Tungsten or wolfram is a rare metal obtained from wolframite, which is by no means a plentiful substance and is not very easy to reduce. Tungsten steels have been for a long time known and employed for high-class machine tools, and when they were first introduced were generally known as Mushet steels. In this capacity they have already rendered great services to the automobile movement, for modern high-class machine tools, which enable steel to be dealt with in the lathe at a speed which would have petrified the engineers of the last generation, are almost invariably made of tungsten steel. The peculiar characteristic of tungsten steels is that they are self-hardening. There is nothing more interesting than to observe a skilful smith manipulating a tungsten steel. At a moderate red-heat it is soft and malleable, and can be forged and cut almost like iron. When it is shaped to the required form it is put aside to cool slowly — never chilled — and by slow cooling attains a degree of hardness which no other steel can equal. In percentages too small to confer this self-hardening property to any noticeable degree, it has, however, recently been discovered that it adds to the tenacity and strength of a steel to a degree which no admixture of nickel can equal. Much comment has been evoked by the manner in which the very light field artillery employed by the Japanese in the late war out-ranged the Russian guns. It has since transpired that the material employed in the manufacture of their ordnance is tungsten steel, and the splendid qualities of this material have enabled them both to diminish the weight of their guns, and to increase their charge, which, of course, means increasing their range. The conclusion seems to follow that the material which enables improvements of this kind to be effected in the case of artillery would be not less effective in meeting the severe demands which automobile construction places upon it, and automobile engineers would be well advised to bear its pre-eminent qualities constantly in mind.

* * *

Vanadium.

AN even newer, and in some respects equally remarkable, alloy is provided, as pointed out by Mr. E. Tucker in a recent paper, read before the Automobile and Cycle Engineers' Institute at Birmingham, by the combination of the metal, Vanadium, with iron. Vanadium is a metal discovered some twenty years ago by Sir Henry Roscoe, at which date it was many times more valuable than gold. Since its discovery, like other rare objects, it has been found in a variety of previously unsuspected places, and is now sufficiently cheap for manufacturers to be enabled to employ a small percentage of it in combination with iron in high-class steels. Its effects when so employed are remarkable, being in some respects similar to the addition of a slightly higher proportion of chromium. Chromium steels, that is to say ordinary

steels containing carbon and iron, with a small percentage of chromium, have for a long time been celebrated for the enormous tensile strength they possess. When chromium is employed in a nickel steel the effects are still more remarkable, and when to this combination is added a small percentage, say 0.15 of vanadium, the increase in the tensile strength and, above all, the tendency to resist shocks and jars in the cold, is increased enormously. Such a steel is an ideal material for use in automobile construction, particularly in crank-shafts and similar parts liable to powerful alternating stresses and strains, and its magnificent properties are certainly calculated to enable the size and weight of parts to be materially reduced. Of course, the economy the improved material admits of must not be carried too far. The object aimed at must be, while slightly economising in weight, to obtain greater strength and reliability, and this, it would appear, vanadium steel enables the manufacturer to accomplish most satisfactorily. The subject is one of high interest to all constructors.



Royal Commission on Motor Cars.—The witnesses called since our last issue went to press are as follows:—Mr. Fitzgerald (assistant secretary to the Office of Works), Mr. F. Fox (of the firm of Sir Douglas Fox and partners), Lord Willoughby de Broke, the Right Hon. Sir James Fergusson, M.P., Mr. W. W. Lupton, of Malton (representing the Yorkshire Union of Agricultural Clubs), Mr. Howard Humphreys (representing the Roads Improvement Association), Mr. Vere Shaw (secretary of the Harness, Horse, and Pony Society), Mr. Henry Norman, M.P., Mr. Arthur Pain, M.I.C.E., J.P. (deputy chairman of the Highways and Bridges Committee of the Surrey County Council), Mr. F. G. Howell (county surveyor of Surrey), Mr. Henry Austin (late of the Wolseley Motor Works, Birmingham), Mr. Pickmere (town clerk of Liverpool), Mr. F. J. Edge (on behalf of the Association of Municipal Corporations), Mr. Thomas Holt (town clerk of Winchester, representing the Non-County Boroughs Association), and Mr. E. H. Hackett (county surveyor of Tipperary).

Motor Union Conference.—A private conference of (a) members of the General Committee of the Motor Union; (b) the chairmen, treasurers and honorary secretaries of affiliated clubs; and (c) the honorary local correspondents of the Motor Union will be held in the reception room at Olympia at three p.m. on Wednesday, November 22nd, the date of the meeting of the General Committee and of the annual dinner. The chief purpose of the conference is to consider and to arrive at a general understanding as to the policy of the Union in connection with the forthcoming General Election.

WE are glad to record, amongst the King's Birthday Honours, that Mr. W. Davis Goff, so well known in connection with automobilism, has been created a Baronet. Since June, 1903, Sir William has been one of the most enthusiastic members of the Motor Volunteer Corps. He was at one time in a cavalry regiment, and his elevation to a baronetcy has been most favourably received in the M.V.C.

[Owing to the enormous pressure on our space this week, we have been compelled to hold over Correspondence and several other regular features.—Ed.]

SOME LEADING CARS AT OLYMPIA.

THE NEW ARROL-JOHNSTON PETROL CAR—PART I.

One of the new Arrol-Johnston Petrol Cars, all of which now have the Engine mounted in front, Multiple-Disc Main Clutches, and Bevel-driven Live Axles.

Now that the time has come when the builders of the Arrol-Johnston cars have decided to widely extend their field of operations, they find themselves in a particularly strong position for doing so. They not only have nearly ten years of valuable experience in motor car construction to their credit, but they have been remarkably successful in the first introduction of their new models to the public—inaugurating the event by winning the Tourist Trophy in the Isle of Man with one car, and securing the fourth place with the other. In Scotland, and, indeed, in the north generally, no surprise would be

felt at any triumphs they might secure, for not only has their earlier type of car become synonymous with "reliability" in the minds of motorists across the border, but the very spirit that now pervades the Paisley works—under the able management of Mr. John S. Napier—is alone calculated to inspire confidence.

In the south, it is, perhaps, not so generally remembered that these makers have for many years turned out a remarkably useful type of vehicle, for the car itself was more especially adapted to local requirements in Scotland, and its development proceeded, in consequence,

Fig. 1.—View of the 12-15-h.p. Arrol-Johnston Chassis, showing the general arrangement of the entire mechanism. This smaller Model has the maker's well-tried twin-cylinder, horizontal, balanced Engine placed beneath the Bonnet in front.

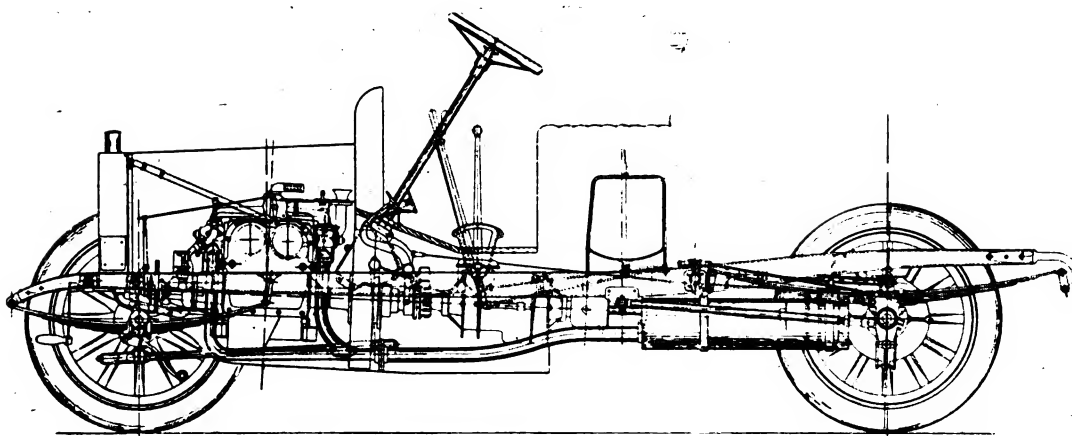


Fig. 2.—Side Elevation of the 12-15-h.p. Arrol-Johnston Chassis.

along somewhat different lines to those with which most motorists are familiar. The nature of the country and the general character of the climate demanded something different during the earlier days of the industry, and the Arrol-Johnston dog-cart, with its high build, compact design and solid tyres, was admirably calculated for standing rough roads and for constant use in wintry weather, where and when many another car would be brought to a standstill.

It is significant, too, and is therefore worthy of more than passing notice, that the Arrol-Johnston dog-cart never underwent any great alteration in general design since it was first described by us in September, 1901, for not only is this an excellent testimony to the engineering skill of the Arrol-Johnston firm, but it is a strong proof that their early model possessed features of exceptional merit. Curiously enough—though apparently few motorists know it—at least two of the supposedly novel characteristics of the very latest up-to-date cars built by other makers have for many years been standard practice on this Scottish dog-cart. We refer to the construction of the live-rear-axle, which not only has roller-bearings, but carries the road-wheels in such a way that the weight of the car is taken direct on the projecting axle-tubes, and to the method of lubricating the entire engine from a pump in the base of the crank-chamber, through oil-passages drilled in the various moving-parts. The two chief portions of that car—the engine and the back axle—have, indeed, been mainly responsible for its remarkable popularity, and it is but natural, therefore, that the makers should now retain them as far as possible on the more orthodox new models which they are putting on the market. It should be remembered that both have stood up extremely well under the exceptionally severe strains imposed by solid rubber tyres, and that, even if the twin-cylinder engine is unlike that on other vehicles, it has stood the test of time and has given every satisfaction.

The Paisley Works.

A word should, moreover, be said, in this preliminary introduction, concerning the manufacturing facilities that are available at Paisley, for there are few works devoted to the manufacture of cars in this country which can boast of a better equipment of modern plant for the purpose, or of a more thorough system of organisation throughout each and every department. Already, the floor space amounts to about $4\frac{1}{2}$ acres, and it is intended to make such extensions that the buildings will shortly

cover the whole $6\frac{1}{2}$ acres of ground owned by the company. Efficiency, regardless of initial outlay, is the keynote in this large factory, where a special study has been made of every modern method for producing on a large scale at a low cost, for securing special materials for special purposes, and for turning out absolutely interchangeable parts. Very remarkable is the equipment of machine tools that has been laid down, and is constantly being added to, while the cutting-speed at which they run denotes the attention that has been given to recent developments in the steel industry. Every part that is required for the manufacture of complete vehicles is made on the premises, with such few exceptions as springs, tyres, and lamps. The New Arrol-Johnston Company have, for some time, even built all their own magnetos.

The New Models.

With the advent of the new models, the firm's dog-cart is no longer to be manufactured, so that there will be no Arrol-Johnston car in future that does not appeal to motorists in all localities. For some time past, this change has been anticipated, but it was not until the makers were satisfied that they could still further extend their reputation with a more universally appreciated type of car, and could build an even more satisfactory kind of vehicle, that the change was finally decided upon.

Even now, most of the best features of the dog-cart have been retained, in a more or less modified form, on all the new cars, and the same form of engine is used on the new twin-cylinder car. This engine is of a special balanced type, with a pair of horizontal cylinders, each of which has two pistons, and has proved itself to be so satisfactory that it was considered useless to attempt to build an equally good twin-cylinder engine of the ordinary vertical pattern.

Two types of pleasure car are now being turned out, and in addition to these is a heavy commercial vehicle, the chassis of which has been specially designed for motor 'bus work. The smaller pleasure car is that fitted with the horizontal engine just referred to, and is practically identical with those that ran in the Tourist Trophy race. The engine gives 12-h.p. at 800 revs. per min., and is easily capable of developing 15-h.p. at its maximum speed of 1,100 revs. per min. The larger car has a 4-cylinder vertical engine, which gives 24-h.p. at 950 revs. per min., and is rated at 24-30-h.p. This same engine is also used for the 'bus chassis.

Both cars are of much the usual live-axle type in general respects, with the engine fixed in front beneath

Fig. 3.—Plan of the 12-15-h.p. Arrol-Johnston chassis.

a bonnet, with a main clutch between it and the gear-box, and with a propeller-shaft and bevel-gearing to drive the road wheels. Except in minor details, and in the size of the various parts, the design of the two is moreover identical, though the larger car has an additional transverse spring at the back, and has a somewhat differently arranged change-speed-gear.

The 'bus chassis also follows the same general lines up to a point, although the frame is so very much larger and stronger, for the engine, clutch, gear-box, propeller-shaft and differential-shaft of the 24-30-h.p. car are used on it, though the differential-shaft does not form its back axle; it constitutes a countershaft instead, and the power is transmitted from it by short side-chains to the road-wheels. The external casing is carried by strong tubular radius-rods that tie the axle to the side-members of the frame, and there are other novel points about the suspension which will be dealt with in due course.

All these models are the outcome of the prolonged experience of which we have already spoken, both in the matter of design and of materials, while a very high standard of workmanship can be relied upon. Not merely reliability for a time is aimed at, but the makers have taken care to ensure that all parts shall be really durable. Although, probably, a large percentage of their customers will prefer to have pneumatic tyres fitted to

the pleasure vehicles, the entire mechanism is of such a nature that solid tyres can safely be employed by those who prefer to take advantage of them; the Arrol-Johnston Company strongly advocate their adoption on the driving wheels, and it should be remembered that they are well accustomed to the use of them.

Neither type of touring car is intended merely for good roads, for fine weather, or for attaining high speeds, but both have been designed as comfortable vehicles for everyday use. They are, as a rule, fitted with roomy side-entrance bodies, seating four or five persons, and they leave nothing to be desired as regards general appearance. The bodies are hinged at the back so as to render the entire mechanism thoroughly accessible, and the mechanism itself is so constructed that any part can be readily inspected.

The 12-15-h.p. model has an 8 ft. 9 in. wheel-base with 810 by 90 mm. tyres, while the wheel-base is 9 ft. 6 in. on the 24-30-h.p. car, with 915 by 105 mm. tyres. In both cases, four forward speeds and a "reverse" are provided by the sliding spur-wheels in the gear-box, and, on the fourth gear, there is a direct drive from the engine to the axle. The tank capacity is sufficient for running a distance of about 200 miles without any replenishment.

(To be continued.)



THE 1906 GLADIATOR CARS.

SEVERAL important alterations have been introduced into the new Gladiator models, which will now include both live-axle and chain-driven types. In all there will be six different chassis, ranging from 10-h.p. to 30-h.p. Of these, the three least powerful have live axles, while the others retain the chain drive which has hitherto been standard on all Gladiator cars. The 10-h.p. and 12-h.p. vehicles have twin-cylinder engines, but the others are of the four-cylinder type with the exception of the new 30-h.p. car, which has a six-cylinder engine.

The main frame is now of pressed steel, and the underframe no longer extends forward beneath the engine, being only employed on the new models for supporting the gear-box. The suspension, however, is still the same as formerly, and the leaf-spring spring-hangers which formed a prominent feature on last year's models are retained on the new cars.

Another important change is the substitution of the "Mercedes" for the "Panhard" type of gear-box on the 18-h.p. model, and also on those which are more powerful. In other respects, the transmission system remains as before, and the differential casing is, it will be noticed, still made separately from the gear-box proper. The side-chains, on those cars which have them, are now entirely enclosed, ball-bearings are fitted throughout the transmission, and a multiple-disc clutch is again one of the important features.

Aster engines are only used on the two smallest cars, for the Gladiator Company build the larger engines themselves. On the 18, 24 and 30-h.p. engines, a variable lift device is fitted, and another feature on the new models is the Gianoli high-tension magneto—a description of which is now appearing in our columns. A honeycomb radiator replaces the coiled tube type used in the old models.

THE LATEST NAPIER CARS—THE 6-CYLINDER MODELS.

It needs, to-day, but a brief visit to the Napier Works at Acton to prove how justified has been the policy adopted by Mr. Edge and Mr. Napier in restricting their attention to only the very best in motor car construction, and it similarly needs only a short run in one of their latest vehicles to convince the most sceptical of the remarkable advantages that can be derived from a six-cylinder engine. It is but a few years ago that even the most enthusiastic manufacturer would have regarded present-day prices as being — commercially — quite impossible, and, however sanguine he might therefore have been concerning the future of the industry, the beautiful

workmanship and costly construction put into some of our best modern vehicles would have seemed to him quite impracticable. Similarly, it may be remarked that only a year ago, six-cylinder engines appeared to be merely a passing craze to many well-informed people, some of whom had, even then, very good reasons for looking upon four cylinders as being inconveniently many. It so happens, however, that the Napier Works have assumed enormous proportions—of which the buildings last described at any length in these columns are but a very small part nowadays—and it also so happens that by far the greater number of cars that are being turned out in this remarkable factory have six-cylinder engines.

Fig. 1.—Front View of the 60-h.p. 6-cylinder Napier Car, which is of the Live-axle Type, and incorporates all the latest refinements of design and improvements of construction.

ing, and remarkable is the trouble that is taken to obtain the best results. The latter is, perhaps, especially striking to those who are fairly well acquainted with the majority of works in this country, for it is not all firms that can afford to place essence of refinement so very far before cost of production. One ceases to wonder why it is that a six-cylinder Napier runs so smoothly after witnessing its manufacture.

On the general subject of six-cylinder engines, it may at once be said that their success or failure depends entirely upon how they are designed and built, for although this statement has at first the appearance of being a mere platitude, its applicability becomes more and more pronounced with each additional pair of

Much more could be written both with regard to the works and upon the merits of six-cylinder engines than would alone fill the space at our disposal, and, therefore, these two interesting subjects must be dealt with quite briefly in order to allow of passing on to a description of the latest Napier vehicles. Concerning the first, it may be said that the equipment of modern tools and of up-to-date appliances is even more complete (in the light of the knowledge of the day) than it has been at any previous period. We have seen no finer workmanship or finish in any other automobile factory. Numerous are the special tools for ensuring absolute accuracy of machin-

Fig. 2.—View of the 60-h.p. Napier Chassis from the "off" side, with the Bonnet removed to show the 6-cylinder Engine.

Fig. 3.—The 60-h.p., 6-cylinder Napier Chassis. View from above.

cylinders. Expressed more definitely, absolute synchronism between cylinder and cylinder is all important if smooth running and regular action are to be ensured, while there are so many ways in which a lack of true synchronism can be allowed to creep into a multi-cylinder engine, that special care and special skill are essential down to the veriest detail. Provided that all these things have been duly attended to, the many more or less obvious advantages resulting from three overlapping impulses, during each revolution, can be secured to the full.

Owing to the greater constancy of the turning moment on the crank-shaft, a much lighter fly-wheel can be used, while another important consideration is that less wear is imposed on all gear-wheels and upon the tyres. The lighter fly-wheel—about half the weight of that needed by a four-cylinder engine of equivalent power—naturally permits the speed to be varied much

more quickly; the frequency of the explosions facilitates getting under way with great smoothness, as well as giving silence and comfort at all times; and the constancy of the suction on the carburettor renders its action almost continuous. It is the ignition apparatus that has naturally presented the greatest difficulties in the past, but the mere fact that the 40-h.p. Napier engine has shown itself capable of driving its car when running at any speed between 240 and 2,100 revs. per min. shows very clearly that this difficulty has been overcome.

The 1906 Models.

No less than three distinct models are now being turned out, for in addition to the chain-driven 40-h.p. car—of which we gave full particulars when it was first introduced—there is now a similar 40-h.p. live-axle vehicle, and also one having a 60-h.p. engine.



THE N.E.C. PETROL CARRIAGE.

AMONGST the entirely new types of vehicle which are to be on view at Olympia, that which is being built at Acton by the New Engine Company will be examined with much interest by most visitors. It is of very novel construction throughout, and is either fitted with a double landaulette body or with a special form of hooded body that is termed an "Alexandra." Whichever style is preferred, it constitutes a very handsome carriage, that is quite suitable for town use in the parks, while its speed capabilities are ample for general touring work in the country.

No semblance of a bonnet is needed, since the 4-cylinder engine, with its opposed horizontal cylinders of $4\frac{1}{2}$ in. bore by $4\frac{1}{2}$ in. stroke, lies compactly between the side members of the frame, beneath the front seat, where its valves and ignition-plugs are very accessible through the panelled doors at each side. Practically no portion of the driving mechanism is visible externally,

for the main frame, with the body, is slung on an unusually low level, and is carried well within the axles. Simple leaf-springs project from each corner of the pressed-steel frame, those at the rear being fixed beneath, and those in front above, the axles; spring torque-rods are also introduced centrally to tie the axles to the frame.

Immediately behind the engine is the fly-wheel, and close behind it is the change-speed mechanism; the latter is of the epicyclic type, providing a direct top speed, one hill-climbing gear and a "reverse." The gear and the engine are both fixed to an independent framework, which is in turn secured to the main-frame with a three-point suspension. From the change-speed-gear, the power is transmitted to the "live" rear-axle by a universally-jointed propeller-shaft and worm-gearing, the worm lying in the base of the axle-casing, beneath the differential.

The engine develops about 30-b.h.p. at its normal speed of 1,250 revs. per min., and the car is either geared to run at 27 or 35 miles per hour, according to requirements. The power available is thus sufficient to enable the top gear to be used under all ordinary running conditions, and this is facilitated by the simple method that is adopted for controlling the engine. Not only does the governor automatically "time" the ignition, but any desired speed is maintained by it; a single hand-lever on the steering-pillar "sets" the normal speed, and the same pedal that disengages the clutch reduces the engine speed initially.

Each piston is fed with oil direct from a large lubricator on the dashboard, but all the other moving parts are

supplied, through the hollow crank-shaft, from a pump in front of the crank-chamber. The circulating water is cooled by a honeycomb radiator placed on a rather lower level than usual close up to the dashboard, and a gear-driven fan draws the necessary air through it.

In spite of the position of the engine, every part is readily accessible, for the upper portion of the crank-chamber—although it contains the cam-shaft and push-rods—can be bodily removed in a few minutes.

Normally, the car has wheels fitted with 36-inch pneumatics, but the vehicle is designed to take 40-inch rear tyres if preferred, and to use solid rubber tyres. The wheel-base is 10 ft. 2 ins., and the track is about 4 ft. 9 ins.



THE 1906 THORNYCROFT CARS.

The 24-h.p. Thornycroft Car.—View of the Chassis from above, showing the suspension of the Gear-box and the position of the Band-brake at the end of the Propeller-shaft.

HITHERTO only one model, and that a comparatively high-powered car, has been manufactured by the Thornycroft Company, but for next year a lighter and less powerful chassis is being turned out, so that an even larger number of motorists than before will find that this well-known type of car comes within the scope of their requirements.

The new model is the same as the Tourist Trophy car, while the larger chassis is similar to that which we described on February 11th this year; the latter is still fitted with the 24-h.p. engine, in which the cylinders are cast separately, with their valves arranged symmetrically on opposite sides, and low-tension igniters fitted as plug fittings over the inlet-valves. The general arrangement of this chassis is clearly indicated in our illustration, which is a view taken from above. The pressed steel frame, it will be noticed, is narrowed some considerable distance behind the dash, and an underframe is provided for the support of the engine and gear. Radius-rods are now hinged to this underframe, and pass rearwards to the live-axle casing, but a separate torque-rod is also provided. Both hand and foot brakes are operated through wire cables; the latter is fitted on the propeller-shaft close up to the differential casing.

On the 14-h.p. car—of which the Tourist Trophy chassis was illustrated on September 9th and 16th—the engine is entirely different, although the other general features do not differ greatly from the 24-h.p. vehicle. The engine has its four cylinders cast in one piece, and all the valves are arranged in the cylinder heads. The cam-shaft, also, lies alongside the top of the cylinders and operates the valves by short rock levers. The low-tension magneto and the circulating pump are driven by a transverse shaft in front, and the high-tension distributor for the battery ignition is mounted behind the dash, and is driven by the cam-shaft. The low-tension igniters are operated from the same cam-shaft as the valves, and their tappet levers are carried by detachable plates, which can be easily removed from the side of the cam-shaft casing, for which they also form inspection covers. The valves themselves are made with bayonet-socket fittings in order to make them very accessible, and they can, by this arrangement, be bodily removed with their seats in a few seconds. Special care has been taken to keep these valves cool, by ensuring that as large a surface as possible comes in direct contact with the water-jacketed cylinder casting.

THE BIANCHI PETROL CAR.

Fig. 1.—The Bianchi Car.—Side view of the 16-22-h.p. Chassis, showing the Metal Sheathing beneath the Engine and Gear. The very long rear Springs are prominent in this view.

ITALY is already famous for the excellence of the cars which have been turned out there, and the latest introduced into this country, the "Bianchi"—for which Messrs. Straker and MacConnell have the sole agency—has every appearance of maintaining the very high reputation already earned by Italian vehicles.

At the present time two models only are being manufactured, viz., 16-22-h.p. and 24-40-h.p., but as these are similar, except in dimensions, the description which we give of the smaller model will apply equally well for the other also. There are no radical innovations in the general design, nor in the construction of the minor parts, but the car is thoroughly up-to-date and well made in every respect. Both models are of the chain-driven type, with four-cylinder engines and four-speed gear-boxes.

The Frame and Transmission.

The frame, which is of pressed steel, is narrowed in front of the dash in order to secure a wide steering lock, and is stayed by perforated transverse members, which have a channel section. Semi-elliptic springs are employed both in front and behind, but those behind lie outside the frame, and are of great length. The front axle is bent, and has plain ends, the forks for the steering-heads being formed on the hubs of the front wheels instead. The tie-rod connecting the steering-knuckles lies behind the axle, the steering-gear itself is of the worm and sector type, and the joints in the connecting-rods of the steering mechanism are of the ball and socket type. The road wheels run on ball-bearings, which are also

Fig. 2.—The Bianchi Car.—View from above of the 16-22-h.p. Chassis, showing the suspension of the Gear-box and the position of the Petrol-tank at the rear of the Chassis.

on the differential countershaft. The internal expanding brakes on the rear hubs are connected to a side lever.

The Engine.

The engine has its four cylinders cast in pairs and the valves are arranged symmetrically on opposite sides. The bore and stroke of the small model are 105 mm. and 130 mm. respectively, while on the larger car the engine has a bore of 125 mm. and its stroke is 150 mm. Inspection plugs are fitted above the valves, and cocks are provided in the cylinder heads. Fitting diagonally into the inlet-valve-chambers are the low-tension igniters, which are operated from exposed cams on the inlet-valve cam-shaft. The lower ends of the tappet-rods are provided with rollers, which rest in contact with the cams. The rods themselves are anchored by links, A¹, Fig. 5, to a rock shaft, A, which is connected to the timing-lever above the steering-wheel. Rocking the shaft, A, thus alters the position of the roller relatively to the cam, and advances or retards the ignition accordingly. The gear-wheels which drive the cam-shafts are situated in front, and are completely enclosed. On the centre of the exhaust-valve cam-shaft is another enclosed gear-wheel, which drives the circulating pump and the magneto; the latter is visible in Fig. 4. The radiator is of the honeycomb type, and is composed of exceptionally small square tubes.

The carburettor, which is prominent in Fig. 5, is pressure-fed from the large petrol tank at the rear of the chassis. The throttle-valve is of the horizontal

Fig. 3.—The Bianchi Car.—View, from behind, of the 16-20-h.p. Chassis, showing the Dashboard and the perforated cross-members of the Frame.

used throughout the transmission. The gear-box is carried on a three-point suspension, being attached directly to both side members of the frame in front, and to one of the transverse members behind. Four speeds and a reverse are provided by means of two sliding members on the driving shaft, and the gear lever, therefore, works in a "gate" type of quadrant. The clutch is of the multiple-disc type, and is enclosed in the fly-wheel, which is of large diameter, and has fan-shaped arms. Between the clutch and the gear-box is a rigid propeller-shaft, coupled up with a short length of flanged shafting in order to facilitate the removal of the clutch. The clutch itself is very easily adjusted, for its spring is exposed and is in an accessible position.

Both clutch and brake pedals are of the "push" type, and the latter operates a shoe brake

Fig. 4.—The Bianchi Car.—View of the 16-20-h.p. Engine, from the Exhaust-valve side, showing the Low-tension Magneto.

sleeve type, and has an extra air-port which uncovers as the throttle-valve opens. The throttle-valve is inter-connected to a hand-lever above the dash, and can also be opened by an accelerator-pedal.

Situated on the dash, is a small handle, B, which operates the spindle, B', to regulate the effective size of the petrol jet in the carburettor.

Lubrication of the engine is effected through a neat sight-feed fitting on the dash, from a small pressure-feed tank fixed to the side of the frame. Care has been taken to protect the entire machinery from mud and dust, for which purpose it will be noticed from our illustrations that a metal sheathing is fitted beneath the frame for the greater part of its length.

Fig. 5.—The Bianchi Car.—View of the 16-20-h.p. Engine, showing the Carburettor and the Low-tension Tappet Mechanism, which is timed by rocking the Shaft, A.



THE "BROTHERHOOD" PETROL CARS.

Several Novel Features, and a Larger New Model.

ALTHOUGH the many good and distinctive points of this year's 20-h.p. "Brotherhood" have been retained, several improvements have been made in readiness for next season. All are, however, additions rather than alterations, and, consequently, the very full description that we gave at the time of the last Olympia exhibition needs but little revision.

The 40-h.p. Car.

Also similar, except as regards size and one or two comparatively minor details, is the new 40-h.p. model, which is now making its appearance for the first time in public. Even in point of view of length, its wheel-base is but one inch longer (9 ft. 10 in.) than the long-frame 20-h.p., but every part is stronger, and the foot-brakes, as well as the hand-operated brakes, act direct upon the hubs of the

road-wheels. The former brakes lie inside, and expand outwardly against, the same brake-drums that are encircled by the latter.

One of the few differences in general design between the 40-h.p. and the 20-h.p. engine is that the more powerful model has a special arrangement of the cam-shaft to enable the compression to be reduced at starting.

The same pedal-control, acting on the variable-lift inlet-valves, and the same automatically "timed" ignition are employed for simplifying its regulation. Its cylinders, however, have a bore of 5 inches, instead of 4 inches, and the stroke is 6 inches, instead of 5 inches.

The Modified Transmission-Gear.

The main clutch is one of the chief departures from

One of this year's 20-h.p. "Brotherhood" Cars, which has now run some 7,000 miles without giving the slightest trouble. Its enthusiastic owner is Mr. Fred. Kelley, of Sheffield.

Fig. 1.—The 1906 "Brotherhood" Change-speed-gear, the lower portion of which carries the whole mechanism, intact with its Ball-bearings. The upper casting, which has been taken off in this illustration, consequently merely serves as an oil-tight cover, and it is even possible to allow the gear to run without it, should it ever be desirable to do so.

this year's practice, for that of the leather-faced cone type has now been replaced by the multiple-disc "Bradley," of which a very full description has already appeared in these columns. Hardly less noticeable, moreover, is the important change that has been made in the gear-box itself and in connection with the differential countershaft, special ball-bearings being fitted to all three shafts. Figs. 1 and 2, enable these to be seen, the former showing the gear-box with the upper portion removed, and the latter being a view from the end of the countershaft.

In the gear-box, the bearings are so arranged that they remain undisturbed in any way, even when fully exposed to view, the upper portion of the box merely serving as an oil-tight cover; it is rendered oil-tight by flanges on the shafts. In Fig. 2, one of the large ball-bearings, A, that support the ends of the countershaft is visible through the combined brake-drum and sprocket-wheel.

Improved Radius-Rods.

Instead of merely hinging the radius-rods, B, to the axle and to the countershaft-bearings, the radius-rods can now ride freely, and take a concentric bearing, about the axle and the countershaft. In this way, they not only maintain an absolutely constant distance between the sprockets and the chain-wheels, and so keep the chain equally tight at all times, but they can be allowed to project rearwardly behind the back axle. The projecting portions carry the brake-operating toggle-levers—as seen in Fig. 3—and

the brake-bands, C, are entirely carried by the radius-rods. The position now occupied by the long springs, C', that act against the hand-lever, will also be noticed.

A further change has been made in connection with this portion of the new vehicles, for the brake-drum now lies between the chain-wheel and the road-wheel, both registering with the hub of the road-wheel to ensure trueness of running. This constitutes a much more compact arrangement, and does away with the distance-pieces formerly employed.

The Ratchet-Sprag.

Visible in Fig. 3, is the pivoted pawl, D, that replaces any ordinary kind of sprag. It acts direct upon the "off"-side road-wheel, and is controlled by the small hand-lever, D', shown in Fig. 5. In Fig. 4, the internal ratchet-wheel, D'', with which the pawl engages—inside

Fig. 3.—Three views of the rear, off-side portion of the 1906 "Brotherhood" Chassis, demonstrating the manner in which the new Radius-rods, C, carry the Hub-brakes; the Brake-drums are located outside the Chain-wheels, and the Sprag-Pawl, D, is fitted so as to engage with the Ratchet-wheel inside the Brake-Drum. A portion of the corrugated Petrol-tank, which is one of the features of these cars, is also visible in the upper illustrations.

cally moved back into its neutral position by the gear-lever, E, when that lever is "reversed."

A New Induction-Coil.

The ignition system itself has undergone no change—except that the position of the plugs has been slightly altered—but an extremely interesting type of induction-coil (the "Bradley") is now used instead of a trembler coil on the 1906 vehicles. This coil differs primarily from all others with which we are acquainted, inasmuch as it gives but one spark, instead of a series, each time that the commutator completes the low-tension circuit. A magnetic switch-device operates the contact-breaker, and this forms an integral part of the complete apparatus. The advantages claimed are two-fold—a saving of current, and a great improvement in synchronism. Current is saved because the primary circuit is instantly broken, by the magnet, immediately after it has been completed by the commutator, and more complete synchronism is possible between cylinder and cylinder—especially at very high speeds—

Fig. 2.—Side view of the central portion of the 20-h.p. "Brotherhood" Chassis, showing the Ball-bearing, A, supporting the end of the Differential Countershaft, and also a portion of the adjustable Radius-rod, B, that now encircles the Countershaft and the Rear-axle.

the brake-drum—stands out very clearly, and the spring, D¹, that holds the pawl clear of the ratchet-wheel will be noticed in Fig. 3.

This ratchet-sprag is connected with the hand-lever, D³, by a steel cable, and the lever itself is carried by the same quadrant as the gear-lever, E, and the brake-

Fig. 4.—A "Brotherhood" Driving Wheel fitted with its combined Brake-drum, Chain-wheel, and Ratchet-wheel. These parts register with the Metal Hub, and are bolted to each alternate Wood-spoke.

lever. For guarding against any risk of damage being done, by attempting to "reverse" the car when the sprag is in play, the very wise precaution has been taken of fitting the lever, D³, in such a way that it is automati-

Fig. 5.—View of the Side Levers on the "Brotherhood" Chassis. The small Lever, D³, controls the direct-acting Ratchet-sprag, on the "off" Driving-wheel, and is automatically held in its neutral position whenever the Gear-lever, E, is caused to introduce the "Reverse" gear. The Hooter-bulb above the Steering-wheel is a characteristic of all "Brotherhood" Cars, the Engine-control on which is by a single Pedal only.

because the contact-breaker always starts from rest, instead of being, to all intents and purposes, constantly trembling.

THE WOLSELEY AND SIDDELEY TOURING CARS FOR 1906.

THERE is little that even the most exacting motorist can require, either as regards size or type of pleasure vehicle, that the Wolseley Company cannot now supply from their extremely comprehensive list of standard cars. Their programme for the coming year includes no less than nine distinct types, and as three of these are made in alternate lengths of chassis, there is, in all, a choice of twelve different models. This is not everything, however, for votaries of the live-axle are now catered for as well as those who still favour the chain-drive; while both the horizontal and the vertical types of engine find their appointed places among these numerous types.

The "Wolseley" and "Siddeley" cars are made in the 6, 8, and 12-h.p. engine need the power of the famous of the

twin-cylinder car. The larger vehicle has four cylinders, but is in other respects similar in design. The gear-box is very short, and has two sliding members, which give three forward speeds and a reverse. The gears are operated by a lever working in a double-slotted quadrant, and a direct through drive is provided on the top speed.

The engines on both models resemble others of the Wolseley and Siddeley type, in having aluminium jackets with cast-iron liners and separate heads, which are independently water-jacketed. A ground joint is made between the head and the cylinder. The inlet-valves have a variable lift device, and they are fitted

Fig. 1.—The 12-h.p. Siddeley Car.—Elevation and Plan of the Chassis, showing the Live-axle and the Three-point Suspension of the Engine and the Gear-box.

Show. The most powerful of these three chassis is, however, a comparatively new model, for it first appeared, in its modified form, in the Tourist Trophy Race. It does not differ materially from the standard Wolseley practice, the only important innovations being the mechanically-operated inlet-valves, and the governor, which acts on the throttle.

The Siddeley cars are now made in six standard sizes, viz., 12, 15, 18, 25, 32, and 70-h.p., and of these the two which are least powerful have live-axes. The general design of these two models is clearly indicated in Fig. 1, which represents an elevation and plan of the smaller

above the exhaust-valves, while the engine itself is carried on a three-point suspension. Ordinary battery ignition is provided on the 12-h.p. model, but a high-tension magneto system is fitted on the 15-h.p. car instead.

The general features of the chain-driven Siddeley cars—which include all models above 15-h.p.—have been described by us in the past, but an important change has now taken place in the transmission system of the new models. Instead of the "Panhard" type of gear previously employed, the "Mercedes" principle of a divided sliding-sleeve has been adopted, and the gear-box resembles in this respect that used on the live-axle cars; no direct through drive to the differential countershaft is, however, provided on the chain-driven vehicles. Another modification is the separation of the differential

* For the description of the 6-h.p. Wolseley car, see THE AUTOMOTOR JOURNAL, May 7, 14, and 21, 1904. The 8-h.p. model was described in February last.

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Fig. 2.—The 18-h.p. Siddeley Car.—Elevation and Plan of the chain-driven Chassis, showing the arrangement of the Gear-box and the separately-enclosed Differential Countershaft.

as it always has done in the Siddeley and Wolseley vehicles, right up to the sprockets outside the frame.

The new features, other than those just mentioned, on the 18-h.p. Siddeley—which is already a familiar model to the motoring public—are a slightly larger engine, which is carried on a three-point suspension, and the adoption of double-ported inlet-valves instead of the plain mushroom type previously used. High-tension magneto ignition is also an innovation on this car.

The 25 and 32-h.p. models are quite new, and their engines are dissimilar to those of the other types, for the cylinders are separate, and are cast in one piece with

their heads and water-jackets. The induction valves are similar to those on the present 18-h.p. model, and they have, like all the Siddeley cars, a variable lift mechanism by which the engine is controlled. A three-point suspension is not in this case provided for the engine, but an important feature in its construction is that the lower half of the crank-chamber is detachable without affecting the crank-shaft. Low-tension magneto is the standard form of ignition on these two models, but an alternative battery system can be provided if required by the purchaser—as with the 15 and 18-h.p. vehicles.



Stand 115a.

THE AUTOMOTOR JOURNAL stand at the Olympia Show is 115A, on the ground floor of the south side of the Hall, near the Hammer Smith Road entrance.

THE proposed establishment of a Winter Sports Club at Olympia has, we understand, given rise to the impression that the annual Motor Exhibition will no longer be held there. This is incorrect. The Society of Motor Manufacturers and Traders will continue to hold their exhibitions in Olympia every November, their position with regard to the building for future shows being absolutely assured.

His Majesty's New Car.—At the Olympia Show, the Daimler Company's chief exhibit, is the new 35-45-h.p. Limousine that has been specially built by them for H.M. the King. It is a beautifully finished six-seater, luxuriously fitted with folding luncheon table, electric lights, and revolving easy chairs.

Bonus for Chauffeurs.—Messrs. Jarrott and Letts make an attractive announcement, in connection with their De Dietrich cars, which is of interest to drivers of these vehicles. They purpose giving away the sum of £100 as prize money. The exact details of their scheme are for the present withheld, but will be available to applicants at the De Dietrich Stand.

THE 1906 DAIMLER CARS.

Fig. 1.—One of the latest Daimler Cars.—View of the Chassis, as seen from above, with the upper and lower portions of the Gear-box removed.

A FEW improvements have been made in the standard design of chassis, but otherwise the Daimler Company have not found it necessary to make any alterations in their famous models for next year. They make the frame in three lengths—to give a wheel-base of 8 ft. 6 ins., 10 ft., or 11 ft.—and they build three engines of different power to suit it. There are thus practically nine distinct types of chassis, which are identical except in length, power, and in the strength of axles, springs, wheels, and frame. A typical chassis, as seen from above, is shown in Fig. 1.

All three engines are of the 4-cylinder type, and are similar in design to those of this year, except that now they have an additional shaft—on the opposite side

to the cam-shaft—for driving the pump; this shaft, which is visible in Fig. 3, also serves for the magneto, when an auxiliary ignition system of that character is required. The three engines develop 28, 30, and 35-h.p. respectively, at normal speed; views showing their construction are given in Figs. 2 and 3. Another alteration of an important character relates to the single-lever control-mechanism for the throttle-valve and the timing-gear, by which the richness of the mixture is varied to suit all and every position of the throttle-valve, and the ignition is simultaneously retarded or advanced to give full power.

Various refinements have been introduced in connection with the leather-faced cone-clutch, with the

Fig. 2.—One of the 1906 Daimler Engines. View from the left side, showing the interconnected Throttle-valve and Timing-gear.

Fig. 3.—View of a Daimler Engine, from the right side, showing the additional Lay-shaft for driving the Pump—and the Magneto also (when required).

result that less pressure is needed on the pedal than formerly. Another new feature on the latest cars is the provision of a safety-catch on the "reverse" lever, to prevent a forward speed from being brought into play when the reversing pinion is in mesh.

The compensating and operating mechanism for the hub-brakes remains unchanged in design, but it is now raised up higher from the ground, and is therefore more

fully protected from mud and dust, besides being more out of the way. The hub-brakes themselves, as also those close up to the sprockets on the ends of the countershaft, have undergone no change.

It will thus be seen that such modifications as these are, are all of a minor character, which is in itself an excellent sign. It indicates that the makers and users alike have had every reason to be satisfied with this year's cars



THE 1906 PANHARD CARS.



DEVOTEES of the six-cylinder engine will welcome the new model which Messrs. Panhard and Levassor are including in their list of cars for 1906. It has a six-cylinder engine which is rated at 50-h.p., but in other respects the design of the chassis follows standard Panhard practice. The engine—which is shown in Fig. 2—has separate cylinders, and it is made in two types, one having steel cylinders with copper water-jackets brazed round them, and the other having each cylinder cast in one piece with its jacket. The valves are arranged symmetrically on each side, and they have inspection covers above them which are held down by yokes. The

engine itself is carried on an angle-iron underframe, which extends as far as the first transverse member

The 50-h.p. Panhard Car.—Front view of the new 1906 model which is fitted with a six-cylinder engine.

for the body. A multiple-disc-clutch is enclosed in the fly-wheel, which has fan-shaped arms, and a short

behind the dash. High-tension magneto ignition of the Eisemann type is provided, and the ignition-plugs are fitted horizontally into the inlet-valve chambers, which are, it will be noticed, all connected together by a straight copper pipe communicating with the carburettor. The carburettor is of the Krebs type and the main throttle-valve is governed automatically by hydraulic pressure from the circulating pump which is gear-driven.

The main frame is constructed on the usual Panhard lines, from flanged steel flitch plates, which are reinforced with wood to stiffen them and to form a substantial foundation

Fig. 1.—The 50-h.p. Panhard Car.—Side view of the Chassis, showing the Steering Column which passes through the Dash.

flanged-coupling is provided in the shaft between the clutch and the gear-box to enable the former to be more easily removed. The gear-box is similar to that used on the 24 and 35-h.p. models, and our illustration, Fig. 3, shows its peculiar shape, and the three-point suspension by which it is carried from two of the transverse members of the main frame. Both shafts in the gear-box are carried on ball-bearings, four speeds and a reverse are available, and the top gear is a direct-through drive to the differential countershaft.

In all, five models are to form standard types for next year, these having engines of 8, 15, 24, 35,

Fig. 2.—The 50-h.p. Panhard Car.—View of the six-cylinder Engine, showing the Kretz's Carburettor and the Hydraulic Governor, A, which opens and closes the Throttle.

engines. No alterations have been made in the smallest model, but some modifications in detail are embodied in the other types. All these cars are now fitted with ball-bearings in the road-wheels, and have hydraulically-governed throttles operated from gear-driven circulating pumps. High-tension magneto ignition is fitted as formerly, but the Eisemann magneto has been specially constructed so that the magnets now rock bodily about the armature for the purpose of "timing." On the 24-h.p. and the more powerful models, the pedals are arranged to be pushed forwards instead of pressed downwards, while another slight modification is that all the new models have the steering column projecting through the dash.



Milan International Exhibition, 1906.—Very considerable provision is being made by the Milan Exhibition authorities for motor cars and their component parts. A special British section is to be installed, to which the British Government have made a grant of £10,000. This being the first International Exhibition ever held in Italy, it should be of very great importance to manufacturers in this country. The King of Italy is giving every assistance to help it to success, and out of the prize-money of £4,000 which the King has presented, £400 will be awarded for the best automobile shown, under special conditions, to be published later. Motors and cycles are classed in the first section of the exhibition, viz., Land Transportation, &c., and will be on view from April 15th to June 1st. Provision is made in this section for complete motor cars, component parts of every description—rubber accessories, motor car bodies, materials for construction, motor clothing, technical and other publications, signposts, &c.

Fig. 3.—Two views of the latest type of Panhard Gear-box, showing the Three-point Suspension. A Gear-box similar to this is fitted on the new six-cylinder 50-h.p. car.

and 50-h.p. respectively. The 8-h.p. model is the well-known 3-cylinder car, and the others, with the exception of the largest chassis just described, all have 4-cylinder

THE number of British exhibitors at the Paris Salon this year are not conspicuously great. In fact, one of the few firms showing are Messrs. C. S. Rolls and Co., who are exhibiting their new 8-cylinder landaulet and their "legal limit" car.

THE 1906 LEGROS AND KNOWLES "IRIS" CARS.—PART II.

(Continued from page 1379.)

LAST week, the leading characteristics of these entirely new and well designed cars were given in the first portion of this article, and were accompanied by four excellent views of the 25-30-h.p. chassis. The photographs then reproduced showed it from the side, from above, from the front and from the back, thus enabling every portion of the mechanism to be seen in place. This week we deal with some of the more novel features in greater detail.

The Chassis.

Concerning the framework and the general arrangements of the various parts, comparatively little more need be said, because the four views that have already been given of the complete chassis render the design, as a whole, perfectly clear. Thus, in Figs. 1 and 2, it is seen that the pressed steel main-frame has straight side-members, that the full elliptic rear springs are fixed outside it, and that except for the two tubular supports for the engine, and for a light stay across from one spring-horn to the other, there are no cross-members forward

The novel form of radiator is well illustrated in Fig. 3, but a word or two by way of description may be found welcome. The diamond-shaped framework forms a kind of tank around the tubes, and the circulating pump is fixed to this framework. Owing to the fact that the vertical-finned tubes only occupy the upper portion, it is easy to remove the pump—from the front of the car—should anything go wrong with it. This is further facilitated by the use of a flexible jaw-coupling for connecting it to the engine. The pump itself is of the gear-wheel type, and there is a belt-driven fan behind the radiator.

View of the New 25-30-h.p. "Iris" Car, fitted with Standard Side-entrance Body.

of that immediately in front of the gear-box. Similarly, from Fig. 3, it is obvious that the front axle is tubular and that the ball-bearing steering-heads are of a somewhat original pattern; the axle itself has a core of ash forced tightly into place inside it, and the shape of the steering-heads permits it to pass across on a slightly lower level than usual.

The steering-gear is now of the worm and sector pattern. It is rendered very "light" in action by the use of ball-bearings, and is provided with means for taking up any end-play that may develop.

As seen in Fig. 1, the petrol tank, which has a capacity of about 12 galls., is fixed to the chassis, so that it lies beneath the front seat. Although sufficiently high up to feed the carburettor by gravity under ordinary working conditions, a pressure-feed device is connected with it as a precautionary measure. The same pressure-valve serves to make the exhaust gases feed the oil through the lubricator, and the same pressure-gauge shows whether the valve is acting properly.

The Engine.

Two views of the engine are given in Fig. 5, and in both will be noticed the wood-filled steel tubes, B, by which it is fixed in place in the chassis. These tubes pass through the upper portion of the crank-chamber, and thus enable the base casting—which merely forms an oil-tight casing—to be removed without difficulty. The bearing cups for the crank-shaft are, of course, on the underside of that shaft, being secured to the main portion of the crank-chamber. Accessibility to the interior is still further obtained by large doors on the right hand side of the engine; in our illustration one of these doors is lifted off, and laid beneath.

Each pair of cylinders is formed by one casting, and although all the valves are alongside one another on the left, the carburettor and the induction-pipe, A, are complete in themselves on the opposite side. This result is obtained by providing passages, A', for the explosive-mixture, across between the cylinders, in the castings

themselves; the exhaust-pipe-fittings alone occupy the usual position on the valve side of the engine.

Another neat feature of the engine is that the cam-shaft, complete with its ball-bearings and push-rods, is contained in an independent casting, C, that can be removed intact by taking off a few nuts. A metal-to-metal face-joint is made between the casting, C, and the main casting. Also fitted within the casting, C—at its front end—is a short cross-shaft, C', this being driven by spiral gear-wheels from the cam-shaft. The shaft, C', is

only drives the water-pump (by a direct connection) but the fan also (by a belt).

In Fig. 5, the two pipe-fittings, D and D', by which the water enters and leaves the cylinder-jackets, respectively, are clearly visible. The cool water enters around all four exhaust-valves, and leaves at the top of each jacket.

To a certain extent the lubrication and the ignition can be considered simultaneously, since the two-way switch for the latter forms a part of the lubricator-fitting

Fig. 5.—Two Views of the 1906 Legros and Knowles Petrol Engine, showing the arrangement of the Carburettor, the Induction Passages through the Cylinder-castings, the separately-detachable Cam-shaft casing, and the Inspection-doors in the side of the Crank-chamber. The specially-shaped Gear-wheels should also be noticed.

adapted to receive the horizontal spindle of the combined commutator and distributor that operates the ignition system. As shown in Fig. 2, this commutator lies in a very convenient position to the right of the engine.

The cam-shaft is driven by spur-wheels, having teeth of a special shape, from the metal pinion, C³, on the crank-shaft. Interposed between the pinion, C³, and the spur-wheel, C⁴ (on the cam-shaft), is the fibre-wheel, C², and this wheel not only serves to render the gearing silent, but it also lies in line with the circulating pump. The teeth are unusually wide on the wheel, C², and are unusually far apart on the metal wheels, C³ and C⁴, and they thus compensate for the inferior strength of the non-metallic material. The further ingenuity of the designers is displayed by the fact that the wheel, C², not

on the dashboard. When the switch is in its neutral position, the oil-feed, through the sight-feed glass, to the crank-chamber is interrupted simultaneously with the current from either battery, but in either of the "on" positions the oil is free to flow. One battery or the other is then rendered operative for the ignition and for the carriage lamps, while a specially arranged dynamo is automatically made to recharge the idle battery. A single trembler coil feeds all four ignition-plugs, the glass-cased distributor (already mentioned), connecting it alternately with each plug in turn. When the switch is made to "change over" from one battery to another, the direction in which the current flows through the primary circuit is reversed, thus rendering the platinum contacts less liable to require attention through "pitting" at the positive pole.

(To be continued.)



THE 1906 AUSTIN PETROL CARS.

So great has been the success of the cars for which Mr. H. Austin has been responsible, as manager for the Wolseley Company, and so well known is he and his work in all motoring circles, that our readers—and all those who take an interest in substantial and serviceable touring cars—will naturally be anxious to obtain particulars of the new cars which bear his own name. At present, he is busily engaged in completing the equipment and organisation of his extensive works at Northfield, where we hope shortly to be able to pay him a visit in order to thoroughly acquaint ourselves with the "Austin" cars. For

the time being, we are only permitted to state that the first models to be turned out by him will be a live-axle car having a 15-20-h.p. engine, and a 25-30-h.p. vehicle, which can either be supplied with side chains or a shaft drive. Everything will be ready very shortly to build these cars on a large scale, and already excellent progress has been made with a view to early delivery next year. Mr. Austin has always been such an ardent advocate of simple design combined with strong construction, and has had such a unique experience in the manufacture of reliable cars, that it is safe to predict great things for those which are to be made in his own factory.

HIGH-TENSION MAGNETO IGNITION.—PART XVI.

THE GIANOLI SYSTEM.

*(Continued from page 1387).***The Armature**

EXCEPT for the fact that the armature carries the contact-breaker on the back of one of its end-plates, there is nothing which at first sight distinguishes its con-

would be the case if the laminæ were continued to the circumference in the usual way. This form of construction also gives considerable mechanical rigidity to the armature.

The ends of the core are secured to ordinary brass end-plates, B^s, which carry the halves of the armature-spindle, B and B'. In the present type, the construction

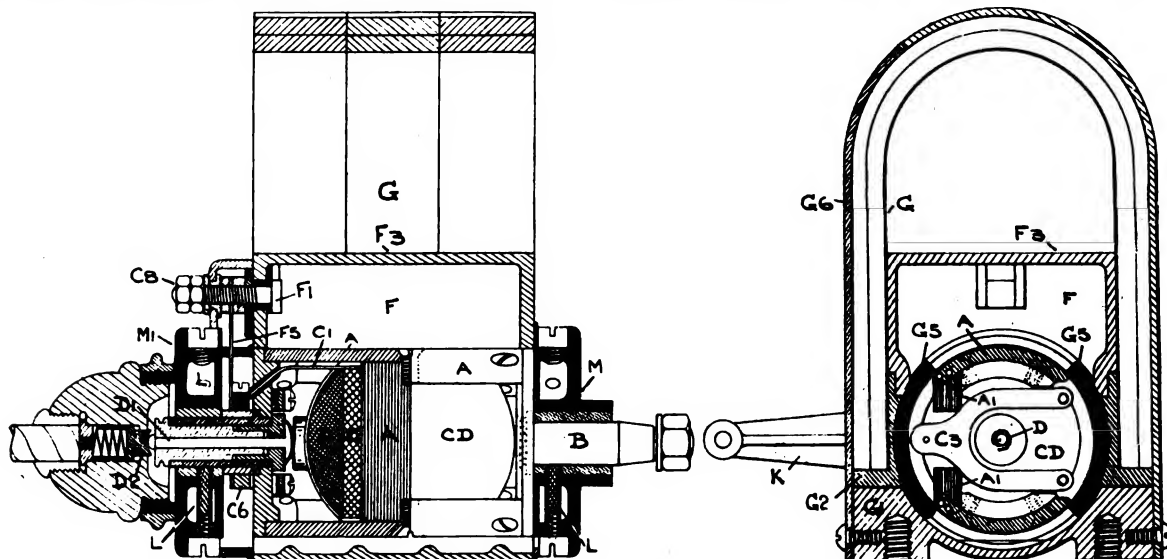


FIG. 4.—The Gianoli High-Tension Magneto.—Sectional drawings showing the construction of the machine. The manner in which the high-tension current is led from the Secondary Winding, D, to the Contact, D², is clearly shown in these views.

struction from other armatures of this type, although in detail it has actually many peculiarities. The centre part of the core, A, is laminated in the usual way, but instead of the laminæ extending to the circumference, they are cut off short, and the side-plates, A¹—which, as usual, are solid pieces of metal secured in place by screws—extend throughout the length of the armature. Cast in position on these side-plates, A¹, are the small pole-pieces, A² (Figs. 4 and 5), used for operating the automatic contact-breaker, C³, and it is because these pole-pieces must be readily magnetised by the armature current, that the side-plates, A¹, are attached in the manner described; it is by so doing that this particular magnetic circuit is rendered less reluctant to the passage of the lines of force, than

of this detail follows the usual practice of screwing and riveting the ends of the steel spindles directly into the brass plates. An improvement will be introduced in next year's model, however, in order to make this joint stronger, and the spindles will be forced into long brass sleeves, cast solid with the end plates. The latter method of construction has, of course, only been rendered possible by the adoption of ball bearings, because otherwise the brass sleeves themselves would be running in contact with the plain bearing surfaces.

Both the primary and secondary coils are wound on the armature core; the primary winding, C, being adjacent to the iron, and the secondary winding, D, being wound over the primary and connected to it (Fig. 10).

(To be continued.)

FIG. 5.—The Gianoli High-Tension Magneto.—Detailed views showing the construction of the automatic Contact-breaker, which is one of the principal features of this system. The Contact-breaker acts, in this Magneto, like the trembler of an ordinary trembler-coil.

LIST OF EXHIBITORS

AT THE OLYMPIA EXHIBITION.

[The numbers after the names denote the numbers of the Stands, and correspond with those shown on the annexed Plan of the Hall.]

A.

Adams Manufacturing Co., Ltd. (71).
 Albany Manufacturing Co., Ltd. (80).
 Albion Motor Car Co., Ltd. (82).
 Alford and Alder (13).
 Alldays and Onions, Ltd. (66).
 Anglo-American Motor Co. (43).
 Anglo-American Oil Co., Ltd. (208A).
 Argyll Motors Ltd. (15, 87).
 Ariel Motor Co., Ltd. (41).
 Armstrong-Whitworth and Co., Ltd. (81).
 Aster, Ltd. (79, 149, 179).
AUTOMOTOR JOURNAL (115A).

B.

Bates, W. and A., Ltd. (250).
 Beaufort Motor Co. (92, 173).
 Bell Brothers (98).
 Belsize Motor Co., Ltd. (83).
 Bowley, S., and Son (190).
 Brampton Bros., Ltd. (224).
 Bransom, Kent and Co. (207).
 British Automobile Commercial Synd. (112).
 British Automobile Development Synd. (159).
 Brooke, J. W., and Co. (52, 145).
 Brotherhood Crocker Motors, Ltd. (28).
 Brouhot Motor Co., Ltd. (128).
 Brown Bros. (202).
 Burgess, W. H. M. (12).
 Burlington Carriage Co. (177).

C.

Calthrope Motor Co. (107).
 Cann, Ltd. (176).
 Cannstatt Automobiles (124).
Carriage Builders' Journal (241).
 Clarkson, Ltd. (73).
 Clement-Talbot Ltd. (2).
 Climax Motors, Ltd. (18).
 Collier Tyre Co. (247).
 Connolly Bros. (191, 249).
 Continental Hardware Co. (212A).
 Continental Tyre and Rubber Co. (256).
 Cordingley and Co. (233).
 Coventry Chain Co. (201).
 Crawshay-Williams, Ltd. (24).
 Cupelle Motors, Ltd. (23).

D.

Daimler Motor Co., Ltd. (55, 62).
 Darracq and Co., Ltd. (125).
 Davenport and Co. (243).
 Deasy and Co., Ltd. (29, 162).
 De Dion Bouton, Ltd. (68, 74, 134).
 De Dietrich et Cie. (33, 103, 133).
 Delaunay Belleville (58).
 Dennis Bros., Ltd. (47, 94).
 Dixon Bros. and Hutchinson (139).
 Doherty Motor Co. (188).
 Drykitt Ltd. (200).
 Dunlop Tyre Co. (235).
 Duryea Motor Co. (37).

E.

Eastbourne Motor Co. (170).
 Eclipse Machine Co. (1).
 Edge, S. F. (61, 143).
 Electromobile Co., Ltd. (67).
 Enfield Cycle Co., Ltd. (17).

F.

Farman Automobile Co., Ltd. (32).
F.I.A.T. Motors (113, 154).
Flather, W. T., Ltd. (222).
Foden (172).
Friswell, Ltd. (104).
Frost, Harvey, and Co. (225).

G.

Gamage, A. W. (205).
General Petroleum Co. (242).
Gladiator Co. (63).
Gobron Brillie Motor Co. (130).
Godin, Andre A. (211).
Green, T., and Sons, Ltd. (168).
Gutmann, Walter (65).

H.

Hall, H. E., and Co. (31).
Hamshaw, H. A. (181).
Hart, Harden and Co. (148).
Hay Motor Co. (163).
Herbert, Alf., Ltd. (120).
Hitchon Gear (106).
Hobson, H. M., Ltd. (6).
Hoffman Manufacturing Co. (197, 199).
Hopkinson and Co., Ltd. (253).
Hora, E. and H. (10).
Horshall and Bickham (30).
Howes and Sons (7).
Humber, Ltd. (8).
Hutton, J. E., Ltd. (20, 152, 244).

I.

Iden Motor Car Co. (16, 27).
Iliffe and Sons (111).
Immisch Launch Co. (155).
Imperial Rubber Co. (236).
Industrial Motor Review (332).
Ivanhoe Motor Co. (99).

J.

Jackson, Reynold and Co., Ltd. (11).
James and Brown, Ltd. (88, 95).
Jones, E. (3).

K.

Keele, Jos., and Co. (131).
Kensington Motor Boat Co. (160).
King, T., and Co. (146).
Krieger Elec. Carriage Co. (129).

L.

Lacoste and Co. (217).
Lacre Motor Car Co. (97, 196).
Lake and Elliott (212).
Lamb Brothers and Garnett (169).
Lancaster, E. H. (59).
Lanchester Motor Co. (114).
Laurie and Marner (175).
Lawton, J. A., and Co. (102).

Leader Motor Co. (5).
Legros and Knowles (22, 167).
Lindsay Motor Co. (14).
Liversidge and Son, Ltd. (36, 182, 252).
London and Parisian Motor Co. (127).
London Motor Garage (49).
Lovegrove and Co. (203).
Lowe, Bevan and Co. (213).
Lucas, Joseph (208).

M.

Macintosh and Co. (258).
Masui, Theo. (21, 251).
Maudslay Motor Co., Ltd. (45, 156, 165).
Meinhardt, Wilhelm and Co. (132).
Melhuish, R., Ltd. (121, 206).
Metropolitan Engineering Co. (86).
Michelin and Co. (230).
Mills, Wm., Ltd. (194).
Milnes-Daimler, Ltd. (73).
Minerva Motors, Ltd. (39).
Mitcham Motor Co. (144).
Mo-Car Syndicate (35, 40).
Morgan and Co. (108, 185).
Mors, Ltd. (117, 164).
Moseley and Sons (255).
Motoring (13A).
Motorist (240).
Motor Car Emporium (174).
Motor Manufacturing Co. (119).
Motor News (228).
Motor World (238).
Motor Trader (116).
Motor Union (8A).
Mulliner's Carriage Building Co. (4).

N.

New Arrol-Johnston Car Co., Ltd. (35, 40).
New Engine Co. (91).
North British Rubber Co. (248).

O.

Olds Motor Co. (89).
Oppermann (171).
Orleans Motor Co., Ltd. (101).
Otto Bennett, Ltd. (246).
Owen and Sons, Ltd. (184).

P.

Palmer Tyre Co (257).
Panhard and Levassor (60, 135, 151, 204).
Parsons Non-Skid Co. (239).
Peckham, F. W., and Co. (9).
Penman, A. C. (109).
Perman and Co., Ltd. (78, 136).
Peto and Radford (192).
Phoenix Motor Co. (34).
Portable Accumulators, Ltd. (221).
Putney Motor Co., Ltd. (19, 150).

R.

Riches, G. T., and Co. (245).
Rotax Co. (212A).

Rotherham and Sons (220).
Rose Brothers (186).
Rover Cycle Co., Ltd. (64).
Rubery, Owen and Co. (183).
Ryde Motors, Ltd. (76).
Ryknield Engine Co., Ltd. (42).

S.

Sawyer and Co. (234).
Scott, Stirling and Co. (153).
Seal Motor Co. (138).
Seamless Steel Boat Co. (147).
Selig, Sonenthal and Co. (123).
Seymours, Ltd. (26, 158).
Shrewsbury Tyre Co. (237).
Simms Manufacturing Co. (69, 75, 140).
Simpson, Strickland and Co. (137).
Singer and Co. (46).
Sirdar Rubber Co., Ltd. (254).
Speedwell Motor Co., Ltd. (100).
Standard Motor Co., Ltd. (84).
Stern, Sonneborn Oil Co. (231).
Stevenson and Son (198).
Straker and McConnell, Ltd. (85, 166).
Straker and Squire (96).
Straus, G., and Co. (209).
Straker Steam Vehicle Co. (53).
Sunbeam Motor Co., Ltd. (77).
Swift Motor Co., Ltd. (51).

T.

Temple Press (105).
Thames Engineering Co. (161).
Thorn, W. and F. (180).
Thornycroft, J. I., and Co., Ltd. (56, 57, 141).
Thrupp and Maberley (126).
Turner's Motor Manufacturing Co. (44).

U.

United Motor Industries (226).

V.

Vacuum Oil Co. (215, 216).
Van Raden and Co. (195).
Vauxhall Ironworks Co., Ltd. (90).
Victoria Carriage Works (118).
Vulcan Motor Manufacturing Co. (38).

W.

Wallis and Stevens (157).
Waterson, H., and Son (214).
Weldhen and Blieriot (223).
White, Chas. (210).
White and Poppe (178).
White Steam Cars (50).
Whitlock Automobile Co., Ltd. (25).
Wilcock and Co., Ltd. (132, 193).
Willans and Robinson (189).
Winton Motor Carriage Co. (70).
Wolseley Tool (48, 54, 142).



VISITORS to the Show, who know what they especially wish to see, have but to glance in this index for the number of the stall which they require, and to use the plan on page 1428 as a guide to its position. Our own stand is on the ground floor in the south-west corner of the main hall, and we hope that our readers will not

hesitate to apply there for information on any matter in which we can assist them. We would also draw attention to the fact that most of the important cars exhibited are being, or have been, fully illustrated and described in our columns, and most back numbers containing such references will be available at the Show.

OLYMPIA EXHIBITION, 1905-6.

Buyers' Guide to Exhibited Cars classified by Number of Cylinders and Price.

NOTE.—In certain cases the information available is so meagre that we have not felt justified in including such vehicles in our otherwise very complete list of reference.

LEADING CHARACTERISTICS.										CONSTRUCTIONAL DETAILS.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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				Chassis.	With Standard Body.	Type.	Bore.	Stroke.	Normal Speed.	Cyl. capy. 10,000 cubic ins. per min.	Ignition.	Fuel Feed.	Control.	Clutch.	Change-speed-gear.	Number.	"Direct."	1st.	2nd.	3rd.		4th.	Engine.	Live Axle.	Wheels.	Wheel Base.	Extreme Width.	Driving Tyres.	Chassis.	Complete Car.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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CONSTRUCTIONAL DETAILS.

LEADING CHARACTERISTICS.

Stall No.	Description.	Seating Capacity.	Gears to (m.p.h.)	Drive.	Price.		ENGINE.				TRANSMISSION.				BEARINGS.		DIMENSIONS.			WEIGHT.													
					Chassis.	With Standard Body.	Type.	Bore.	Stroke.	Normal Speed.	Cyl. capy. 10,000 cubic ins. per min.	Ignition.	Fuel Feed.	Control.	Clutch.	Change-speed gear.	Number.	Speeds.			Engine.	Live Axle.	Wheels.	Wheel Base.	Extreme Width.	Driving Tyres.	Chassis.	Complete Car.					
																		1st.	2nd.	3rd.									4th.				
Four-cylinder Cars—Continued.																																	
2	Y	6	—	CC	595	595	V	100	120	1000	23.0	m	g	G	lc	S	3 3rd	—	—	—	—	P	B	P	B	10	0	5	8	875 x 105	25 1/2	26	
5	510	5	30	CC	590	590	V	110	13 1/2	950	18.8	M	d	G	lc	S	3	—	—	—	—	P	P	P	P	9	2	5	8	875 x 105	17	52	
5	510	5	—	8	600	600	V	110	110	1000	25.3	m	g	G	lc	S	3	3rd	13	23	36	—	P	P	P	P	9	2	5	6	870 x 90	18 1/2	69
5	—	5	32	8	600	600	V	100	120	1000	29.5	b, m	p	—	—	lc	3 3rd	8	16	32	—	P	P	P	P	9	1	—	—	880 x 120	22	38	
5	510	5	—	CC	550	550	V	95	130	1000	22.4	b, m	g	—	—	mc	4 4th	—	—	—	—	P	P	P	P	9	9	5	10	880 x 120	22	63	
5	500	5	—	CC	580	580	V	100	105	1000	20.0	b, m	g	—	—	lc	3 3rd	4	18	20	—	P	P	P	P	9	4	4	8	875 x 105	16 1/2	6	
5	500	5	—	8	550	550	V	90	120	900	16.8	m	p	—	—	lc	2nd	—	—	—	—	P	R	R	R	8	3 1/2	—	—	870 x 90	17	89	
5	500	5	32	8	550	550	V	100	120	1000	39.3	b	g	G	mc	S	4 3rd	8	16	24	—	P	P	P	P	9	0	5	0	810 x 100	19 1/2	70	
5	—	5	35	8	550	550	V	95	130	1100	25.0	b	p	—	—	mc	3 3rd	9	17 1/2	35	—	P	P	P	P	9	0	5	0	105	15 1/2	19	
5	—	5	48	CC	547	547	V	112	120	1000	28.8	b	g	—	—	mc	3 3rd	—	—	—	—	P	P	P	P	9	0	5	0	875 x 105	18	84	
7	435	7	—	CC	585	585	V	100	120	1000	23.0	b	p	—	—	mc	4	6	10	23	35	P	—	—	—	9	7	5	5	880 x 120	17	24	
5	435	5	—	8	525	525	V	90	110	1300	22.0	b	g	G	lc	S	3 3rd	—	—	—	—	P	P	P	P	10	6	4	9	815 x 105	18	23	
5	430	5	38	CC	525	525	V	—	—	1000	—	M	p	—	—	mc	4	—	5	10	23	P	P	P	P	9	5	5	3	920 x 120	16 1/2	113	
5	430	5	40	CC	530	530	V	95	120	800	16.7	m	g	—	—	lc	4 4th	10	20	30	40	P	—	—	P	9	7	5	2 1/2	880 x 120	19 1/2	77	
4	401	4	—	8	—	—	V	3 1/2	4 1/2	1050	19.9	b, m	g	—	—	lc	3 3rd	—	—	—	—	P	P	P	P	8	8	—	—	815 x 105	13 1/2	21	
5	478	5	—	8	525	525	V	120	130	900	32.0	b	p	—	—	lc	3 3rd	10	28	45	—	P	P	P	P	10	0	5	8	880 x 120	20	17	
5	475	5	28	8	525	525	V	84	110	1000	13.4	b	g	G	lc	S	3 3rd	7	14	20	28	P	P	P	P	9	0	5	0	810 x 100	14	17 1/2	
4	475	4	30	8	525	525	V	90	100	1000	15.4	b	g	G	lc	S	3 3rd	10	20	30	30	P	P	P	P	9	6	4	8	810 x 100	13	18 1/2	
4	465	4	—	8	600	600	H	3 3/4	3 3/4	900	14.8	b	g	G	mc	S	4 4th	10	18	24	35	P	P	P	P	8	1 1/2	5	0	815 x 105	18 1/2	81	
5	460	5	45	8	530	530	V	88	120	1300	23.0	b, M	g	G	lc	S	4 4th	10	20	35	45	P	P	P	P	8	8	4	9	820 x 120	16	18	
5	460	5	42	8	495	495	V	98	130	1100	26.4	b, m	g	—	—	lc	3 3rd	10	21	42	—	P	P	P	P	8	8	4	9	815 x 105	15	18	
4	460	4	—	8	540	540	V	90	100	1500	23.3	b, m	g	—	—	sd	4	—	9	18	30	—	P	P	P	P	10	0	—	—	880 x 120	—	119
4	452	4	30	8	540	540	V	90	100	1500	23.3	b, m	g	—	—	sd	4	—	9	18	30	—	P	P	P	P	10	0	—	—	880 x 120	—	119
4	452	4	36	8	525	525	V	88	130	1100	21.2	b	g	—	—	lc	4 4th	8	16	26	36	—	P	P	P	P	8	10	4	1	815 x 105	—	68
5	440	5	35	8	500	500	V	90	105	1000	16.4	b	g	—	—	lc	3 3rd	8	18	35	—	P	P	P	P	8	8	5	0	870 x 90	14	51	
5	435	5	—	8	525	525	V	95	110	1000	19.0	m	g	—	—	G	3 3rd	13	23	36	—	P	P	P	P	9	2	5	6	870 x 90	16 1/2	69	
5	435	5	—	8	560	560	V	90	105	1000	16.4	b, m	g	—	—	lc	3 3rd	4	18	20	—	P	P	P	P	9	0	4	8	875 x 105	16	19	
5	435	5	—	8	550	550	V	100	115	900	14.8	b, m	g	—	—	mc	3 3rd	8	20	32	—	P	P	P	P	9	4	5	0	810 x 90	16	19	
4	435	4	—	8	485	485	V	100	115	1000	22.0	b, m	p	—	—	lc	3 3rd	9	20	32	—	P	P	P	P	9	6	—	—	870 x 90	15	39	
5	435	5	32	8	485	485	V	4	4	1000	20.0	m	p	—	—	lc	3 3rd	—	—	—	—	P	P	P	P	9	7	5	6	34 x 3 1/2	15	48	
5	435	5	—	8	485	485	V	85	120	1000	16.6	b, m	g	—	—	mc	4 4th	—	—	—	—	P	P	P	P	9	7	5	6	815 x 105	18	63	
5	435	5	35	8	485	485	V	86	130	1000	18.2	b, m	g	—	—	mc	3 3rd	—	—	—	—	P	P	P	P	9	7	5	1	810 x 90	15	19	
5	435	5	—	8	495	495	V	110	100	1000	23.0	b, m	g	—	—	lc	3 3rd	—	—	—	—	P	P	P	P	9	7	5	6	810 x 90	19 1/2	26	
5	435	5	—	8	475	475	V	85	120	1000	16.6	b, m	g	—	—	mc	4 4th	—	—	—	—	P	P	P	P	9	7	5	6	810 x 90	18	63	
5	430	5	36	CC	475	475	V	95	125	900	20.0	b, m	g	—	—	lc	4 4th	7	16	—	35	P	P	P	P	9	2	5	6	870 x 90	15 1/2	80	
5	—	5	—	8	472	472	V	95	125	900	19.5	b, m	g	—	—	lc	4 4th	—	—	—	—	P	P	P	P	8	8	—	—	815 x 105	—	8	
5	—	5	—	8	460	460	V	90	110	900	15.2	b	g	—	—	lc	3 3rd	—	—	—	—	P	P	P	P	—	—	—	—	810 x 90	—	112	
5	—	5	—	8	450	450	H	—	—	—	—	—	—	—	—	lc	3	—	—	—	—	P	P	P	P	—	—	—	—	810 x 90	—	100	

87	14-16 Argyll	450	V	90	120	1100	20.5	b	p	G	md	U	3	3rd	7	15	30	—	P	R	B	8	0	5	0	810x90	14 1/2	18	87
38	18-20 Vulcan	450	V	90	120	1200	22.0	b, m	p	—	lc	S	3	3rd	8	16	32	—	P	—	B	8	0	—	—	870x100	—	18	38
125	15 Darracq	447	V	90	120	1100	19.5	b	p	—	—	S	3	3rd	9	15	27	—	P	—	B	8	9	—	—	810x90	—	18	125
27	18-22 Iden Phaeton	450	V	97	120	1200	23.8	b	g	—	—	S	3	3rd	9	15	27	—	P	—	P	8	8	5	5	810x90	13 1/2	17 1/2	27
100	14-16 Speedwell	435	V	85	110	1200	18.2	b, m	g	—	—	S	3	3rd	9	19	38	—	P	—	P	8	3	4	5	810x90	14	16 1/2	100
79	12-14 Aster	400	V	84	110	1200	17.9	b	g	G	mc	S	3	3rd	9	19	38	—	P	—	P	8	3	4	5	810x90	16	16 1/2	79
63	12-14 Gladiator	400	V	80	120	1200	17.6	b, m	g	—	—	S	3	3rd	9	19	38	—	P	—	P	8	3	4	5	810x90	16	16 1/2	63
24	14-16 Craw. Williams	470	V	90	110	1000	17.1	b	p	—	md	S	3	3rd	7	17	29	—	P	—	P	8	9	5	5	875x100f	15	20	24
98	16-20 Bell Bros.	450	V	90	120	1000	15.3	b	p	—	—	S	3	3rd	8	16	24	—	P	—	P	8	9	5	5	815x105	15 1/2	17 1/2	98
17	16-20 Royal Enfield	420	V	100	125	900	21.5	b	p	—	—	S	3	3rd	8	20	35	—	P	—	P	8	10	5	8	810x90	20	24	17
18	14 Climax	425	V	82	90	1600	17.2	b	g	—	—	S	3	3rd	8	18	26	—	P	—	P	8	6	4	10	870x90	12	18	18
69	12-15 Slims Welbeck	415	V	82	90	1200	11.6	m	g	G	lc	S	3	3rd	10	19	30	—	P	—	P	8	6	4	10	870x90	15 1/2	18	69
11	16 Jackson	395	V	100	120	1200	27.3	b, m	g	G	lc	S	3	3rd	8	16	45	—	P	—	P	8	9	5	0	800x85	15	18	11
39	16 Minerva	375	V	92	115	1000	18.6	b	g	—	—	S	3	3rd	8	16	45	—	P	—	P	8	9	5	0	810x90	15	18	39
66	16 Alldays	375	V	92	115	1000	18.6	b	g	—	—	S	3	3rd	7	15	25	—	P	—	P	8	6	5	1	34x3 1/2	12	16 1/2	66
51	12-14 Swift	370	V	85	95	1100	14.6	b	g	—	—	S	3	3rd	9	15	27	—	P	—	P	7	9	5	5	810x90	13	16	51
27	12-16 Iden Phaeton	370	V	85	95	1100	14.6	b	g	—	—	S	3	3rd	8	16	32	—	P	—	P	7	9	5	5	810x90	14 1/2	14 1/2	27
38	12-14 Vulcan	350	V	80	90	1000	15.5	b, m	p	—	—	S	3	3rd	8	16	32	—	P	—	P	7	9	5	5	810x90	14 1/2	14 1/2	38
1	10-12 Rothwell	325	V	80	90	1000	11.1	b	p	G	lc	S	3	3rd	10	15	28	—	P	—	P	6	10	—	—	810x90	—	14 1/2	1
8	10-12 Gov. Humber	315	V	80	90	1000	11.4	b	g	—	—	S	3	3rd	—	—	—	—	P	—	P	7	1	—	—	760x90	—	—	8
64	10-12 Rover	300	V	80	90	1250	13.9	b	p	—	—	S	3	3rd	10	19	30	—	P	—	P	8	6	—	—	705x85	12	14	64
106	14 Globe	288	V	5	6	900	42.0	M	g	—	—	S	4	—	15	30	45	—	P	—	P	9	10	4	7	880x120f	12	14	106
28	40 Brotherhood	—	H	4 1/2	6	600	25.0	—	—	G	mc	S	4	—	—	—	—	—	P	—	P	9	0	5	9	34x5f	15	18	28
88	25-30 James and Browne	—	V	105	140	1000	29.5	b, m	g	—	—	—	—	—	—	—	—	—	P	—	P	10	3	—	—	880x120f	—	19 1/2	88
25	24-30 Whitlock Aster	—	V	105	140	1000	29.5	b, m	g	—	—	—	—	—	—	—	—	—	P	—	P	10	3	—	—	880x120f	—	19 1/2	25
59	24 Clement	—	V	105	140	1000	29.5	b, m	g	—	—	—	—	—	—	—	—	—	P	—	P	10	3	—	—	880x120f	—	19 1/2	59
108	24 Morgan	—	V	4 1/2	5 1/2	500	32.0	b, m	g	—	hy	S	4	4th	—	—	—	—	P	—	P	8	10	4	4	32x3 1/2	18	22	108
89	20 Oldsmobile	—	V	4 1/2	4 1/2	700	19.0	b	g	—	—	S	3	3rd	—	—	—	—	P	—	P	8	10	4	4	32x3 1/2	18	22	89
59	18 Clement	—	V	95	130	1000	22.5	b, m	g	—	—	S	4	4th	—	—	—	—	P	—	P	8	10	4	4	32x3 1/2	18	22	59
13	16-24 F.I.A.T.	—	V	105	130	1000	27.5	—	p	—	—	S	4	—	—	—	—	—	P	—	P	8	10	4	4	32x3 1/2	18	22	13
64	18-20 Rover	—	V	95	110	1000	19.1	b, m	g	—	—	S	3	3rd	12	24	36	—	P	—	P	8	10	4	4	32x3 1/2	18	22	64
88	14-16 James and Browne	—	H	3 1/2	4 1/2	800	13.9	b	g	G	mc	S	4	—	—	—	—	—	P	—	P	8	5	5	3	34x3 1/2	14 1/2	17	88
59	14 Clement	—	V	85	120	900	15.0	b, m	g	H	md	S	4	—	—	—	—	—	P	—	P	8	5	4	3	810x90	—	—	59

Three-cylinder Cars.

44	14-16 Argyll	640	H	2 1/2	3 1/2	800	21.2	b	g	—	—	—	—	—	—	—	—	—	P	—	P	7	6	5	6	32x5	22	24	44
83	18-20 Vulcan	550	V	4 1/2	5	850	18.9	b	g	—	—	—	—	—	—	—	—	—	P	—	P	7	6	5	6	32x5	22	24	83
169	15 Darracq	450	V	4 1/2	5 1/2	850	18.9	b	g	—	—	—	—	—	—	—	—	—	P	—	P	7	6	5	6	32x5	22	24	169
44	12-14 Singer	430	H	1 1/2	3 1/2	800	9.1	m	g	—	—	—	—	—	—	—	—	—	P	—	P	7	6	5	6	32x4	17	19	44
60	10-12 Rover	300	V	85	110	800	9.1	m	g	—	—	—	—	—	—	—	—	—	P	—	P	7	6	5	6	32x4	17	19	60
30	14-16 James and Browne	275	V	80	90	1500	12.1	b	g	—	—	—	—	—	—	—	—	—	P	—	P	6	6	4	7	760x90	10	14	30
51	12-14 Swift	375	V	92	115	1000	18.6	b	g	—	—	—	—	—	—	—	—	—	P	—	P	6	6	4	7	760x90	10	14	51
90	14 Clement	—	V	3 1/2	4 1/2	950	9.7	b	g	—	—	—	—	—	—	—	—	—	P	—	P	6	6	4	7	760x90	9	10 1/2	90

Two-cylinder Cars.

		Two-cylinder Cars.																												
45	16-20 Maudslay	600	V	4 1/2	4	850	10.8	b	g	—	lc	S	3	3rd	4	9	18	—	P	—	P	9	6	—	—	—	17	21	45	
92	12-15 Beaufort	425	V	120	130	900	16.2	m	—	—	—	lc <td>3</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>—</td> <td>8</td> <td>2</td> <td>—</td> <td>—</td> <td>810x90</td> <td>—</td> <td>—</td> <td>19</td> <td>92</td>	3	—	—	—	—	—	—	—	—	8	2	—	—	810x90	—	—	19	92
46	12-14 Singer	420	H	4	6	800	12.4	b	g	—	—	lc	3	3rd	7	18	30	—	—	—	B	7	0	5	0	32x3 1/2	14	19	46	
40	12-15 New Arrol-Johnston	410	H	4 1/2	6 1/2	800	14.8	m	p	G	md	S	4	4th	6	14	21	30	—	P	—	R	8	9	4	10	810x90	15	18	40
68	12 De Dion	410	V	100	110	1500	15.6	b, m	g	—	—	sd	3	—	9	18	30	—	—	P	—	P	8	5 1/2	4	1	810x90	—	—	68
48	12 Siddeley	400	V	4 1/2	4 1/2	900	12.8	b	g	—	—	lc	3	3rd	7	17	27	—	—	P	—	B	9	6	—	32x3 1/2	15	19	48	
8	16 Albion	375	V	88	140	1200	17.7	m	g	G	lc	S	3	3rd	6	13	22	—	—	P	—	P	7	0	5	6	34x3 1/2	18	21 1/2	8
13	10-12 Newington	350	V	120	130	1000	12.4	b	g	—	—	lc	3	3rd	7	12	20	—	—	P	—	P	8	6	5	2	810x90	12	18	13
26	14-16 Dixi	350	V	120	130	1000	18.0	m	g	—	—	lc	3	3rd	6	13	26	—	—	P	—	B	—	—	5	2	810x90	16 1/2	17	26
87	10-12 Argyll	350	V	95	140	1100	13.4	b	p	—	—	lc	3	3rd	6	13	26	—	—	P	—	B	6	3	5	0	810x90	14	17	87
79	12-14 Aster	345	V	95	130	1200	13.5	b	g	—	—	lc	3	—	8	17	34	—	—	P	—	P	7	6	4	3	810x90	15	17	79
100	12 Speedwell	345	V	98	130	1100	13.2	b, m	g	—	—	lc	3	3rd	8	17	34	—	—	P	—	P	8	0	5	5	810x90	13	15 1/2	100
63	12 Gladiator	—	V	105	140	1000	14.8	b, m	g	G	md	S	4	4th	—	—	—	—	—	P	—	B	8	4	5	5	810x90	16	16	63
79	10-12 Aster	—	V	88	140	1200	10.2	b	g	G	lc	S	3	3rd	—	—	—	—	—	P	—	B	7	0	4	3	810x90f	14	—	79

CONSTRUCTIONAL DETAILS.

Stall No.	Description.	Seating Capacity.	Gears to (m.p.h.)	Drive.	Chassis.	Price.	ENGINE.				TRANSMISSION.				BEARINGS.		DIMENSIONS.		WEIGHT.										
							Type.	Bore.	Stroke.	Normal Speed.	Cyl. capy. 10,000 cubic ins. per min.	Ignition.	Fuel Feed.	Control.	Change-speed.	Number.	"Direct."	1st.	2nd.	3rd.	4th.	Engine.	Live Axle.	Wheels.	Wheel Base.	Extreme Width.	Driving Tyres.	Chassis.	Complete Car.

Two-cylinder Cars.—continued.																																
10	h.n.	5	28	8	330	260	V	88	120	1300	11.6	b	g	G	lc	3	3rd	12	20	28	—	—	B	B	B	6	0	760×90	11	13	10	
48		4	26	8	255	255	H	4	4	900	9.0	b	g	G	lc	4	—	6	12	18	26	—	P	B	B	7	2	30×34	11½	48	48	
63		5	—	8	325	—	V	88	140	1000	10.2	b, m	g	G	md	3	3rd	—	—	—	—	P	B	B	7	2	810×90	14	83	83		
92		4	—	8	307	—	V	95	115	1000	10.0	b	g	—	lc	3	3rd	—	—	—	—	—	—	—	—	7	2	750×85	—	14½	92	
125		4	—	8	294	—	V	112	120	—	—	b	g	—	lc	3	3rd	—	—	—	—	—	—	—	—	7	3	700×90	—	16	125	
9		5	—	8	275	260	H	5	5	1500	20.5	b	g	—	sd	3	3rd	—	—	—	—	P	R	P	B	7	1	32×34	—	14	9	
83		2	25	8	275	245	V	4	4½	850	9.1	b	g	G	lc	3	3rd	7	14	25	—	P	P	P	B	6	5	700×85	9½	11	83	
23		4	—	8	265	—	V	100	120	1200	13.8	b	g	—	lc	3	3rd	—	—	—	—	P	B	B	9	6	760×90	15	23	23		
125		4	—	8	241	226	V	100	120	—	—	b	g	—	lc	3	3rd	—	—	—	—	—	—	—	—	7	1	760×90	—	14	125	
46		2	28	8	240	200	H	4	4½	800	9.0	b	g	—	lc	3	3rd	7	17	28	—	P	B	B	6	2	30×3	8	12	46		
86		4	24	8	220	190	V	2½	3½	1400	5.6	b	g	—	lc	3	3rd	5	14	24	—	P	B	B	7	10	30×3	—	12	86		
98		2	24	8	200	—	V	3½	4	1200	9.2	b	g	—	lc	3	3rd	8	16	24	—	P	B	B	6	3	760×90	12½	13	98		
51		2	—	8	173	—	H	4	4	1500	15.0	b	g	—	sd	2	—	—	—	—	—	P	R	B	6	0	28×3	—	7	51		
9	8 Maxwell	2	—	8	—	—	V	5	5	1000	17.7	b	g	—	lc	3	3rd	—	—	—	—	P	B	B	7	4	810×90	—	—	59	59	
89	12 Oldsmobile	4	—	8	—	—	V	88	140	1000	10.2	b	g	—	md	3	3rd	—	—	—	—	P	P	P	6	6	28×3	—	10	12	88	88
59	10 Clement	4.5	—	8	—	—	H	3½	4½	800	6.9	b	g	—	mc	3	3rd	—	—	—	—	P	P	P	6	4	28×3	—	8½	11½	66	66
88	8 James and Browne	2	—	8	—	—	V	3½	4½	1200	11.8	b	g	—	lc	3	3rd	7	15	25	—	P	P	P	6	4½	28×34	8½	11½	88	88	
66	10 Alldays No. 4	4	25	8	—	—	V	3½	4½	—	—	b	g	—	lc	3	3rd	—	—	—	—	—	—	—	—	—	—	—	—	—	66	66

One-cylinder Cars.																																
68	9 De Dion	4	26	8	315	251	V	110	130	1500	11.2	b	g	—	sd	3	—	8	16	26	—	P	P	P	6	10	750×85	—	—	68	68	
85	9-11 Berna	4	—	8	250	189	V	120	130	—	—	b	g	—	lc	3	3rd	—	—	—	—	—	—	—	—	7	6	750	5	—	85	85
100	9 Speedwell	4	28	8	245	225	V	106	120	1250	8.0	b	g	—	lc	3	3rd	7	14	28	—	P	B	B	6	4	750×85	10	12½	100	100	
68	8 De Dion	4	25	8	245	185	V	100	120	1500	8.6	b	g	—	lc	3	—	7	15	25	—	P	P	P	6	2	700×85	—	—	68	68	
43	8-10 Cadillac	4	—	8	210	—	H	5	5	900	8.9	b	g	—	sd	3	2nd	—	—	—	—	—	—	—	—	6	2	760×90	11½	13	43	43
11	9 Jackson Dogcart	4	33	8	210	166	V	120	130	1200	10.8	b	g	G	lc	3	3rd	7	12	33	—	P	B	B	6	0	28×34	10	12	11	11	
125	8 Darracq	4	—	8	205	—	V	112	130	—	—	b	g	—	lc	3	3rd	—	—	—	—	—	—	—	—	7	1	700×85	—	—	125	125
48	6 Wolseley	2	26	8	200	160	H	4½	5	800	6.4	b	g	—	lc	3	—	6	13	26	—	P	B	B	5	6	28×34	8	8	48	48	
10	9 Hurku	4	20	8	200	160	V	110	120	1300	9.0	b	g	G	lc	3	3rd	8	12	20	—	—	—	—	—	6	6	750×85	8½	10	10	10
64	8 Rover	2	22	8	200	160	V	4½	5	900	7.2	b	g	—	lc	3	—	7	14	22	—	—	—	—	—	8	30×3	—	8	10½	64	64
100	6 Speedwell	4	—	8	195	185	V	90	110	1250	5.4	b	g	—	lc	3	3rd	6½	12½	25	—	—	—	—	—	6	4	760×90	8	9½	100	100
43	8-10 Cadillac	2	—	8	189	—	H	5	5	900	8.8	b	g	—	sd	3	2nd	—	—	—	—	—	—	—	—	6	4	760×90	11	12	43	43
71	9-10 Adams Hewitt	2	20	8	185	—	H	4½	6½	1000	11.5	b, m	p	—	di	2	2nd	—	—	—	—	—	—	—	—	5	2	760×90	9	11	71	71
66	8 Alldays	2	25	8	180	—	V	4½	4½	1250	9.0	b	g	—	lc	3	3rd	7	15	25	—	P	P	P	6	0	28×34	7½	11	66	66	
106	9 Globe	4	25	8	175	—	V	115	127	1000	8.0	b	g	—	lc	3	3rd	8	15	25	—	—	—	—	—	6	4	700×85	10	11	106	106
86	6 Metropolitan	2	20	8	165	140	V	3½	4	1500	5.8	b	g	—	lc	3	3rd	5	12	20	—	P	B	B	5	10	28	6	9	86	86	
89	7 Oldsmobile	2	—	8	150	—	H	5	6	700	8.3	b	g	—	sd	3	2nd	7	20	—	—	—	—	—	—	5	6	28×3	10½	89	89	
23	6-8 Cupelle	2	—	8	150	135	V	100	120	1200	6.9	b	g	—	lc	3	3rd	—	—	—	—	—	—	—	—	6	0	700×85	6	—	23	23
64	8 Rover	—	—	8	105	—	V	—	—	—	—	b	g	—	lc	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	64	64

Leading Characteristics—
Drive.—S = Propeller Shaft; C = Single Chain; CC = Side Chains.
Engine—
Type.—D = Diagonal; V = Vertical; H = Horizontal.
Cylinder Capacity.—Assuming that 5,000 cubic inches were equivalent to 1 horse power, the figures in this column denote the powers of the engines if 5,000 cubic inches suction = 1 h.p.
Ignition.—b = Battery; m = H. T. Magneto; M = Low-tension magneto; a = Automatic timing.
Fuel Feed.—p = Pressure; g = Gravity.
Control.—G = Automatic Governor; H = Hand Control.

Transmission—
Clutch.—lc = Leather Faced Cone; mc = Metal Cone; mt = Multiple Disc; sd = Single Disc; ca = Expanding; sc = Scroll; dc = Double Cone (leather and metal).
hy = Hydraulic.
Change Speed Gear.—S = Sliding Spur; E = Epicyclic; U = Unusual.

Bearings—
P = Plain; B = Ball; R = Roller.

Dimensions—
Wheel Base.—Shortest standard model given where different lengths made.
Tyres.—f denotes that the front wheels are of different size.

THE MIDDLETON PNEUMATIC HUB.

AMONG the numerous inventions for rendering solid-tired wheels more resilient, the majority, at any rate of those which have reached a practical stage, have been purely mechanical, relying entirely on steel springs to provide the elastic medium between the wheel proper and the axle supporting it. The Middleton hub, how-

The inside of the housing, A, is hollowed out to form a concave recess for the accommodation of the annular pneumatic cushion, C, which is made of slightly larger diameter, and has to be "sprung" into position in consequence. Metal flanges fit closely against the sides and base of the cushion, as shown in Fig. 4, and help to prevent it from spreading under the load. The cushion and its flanges are secured in place by the plate, A³, which is flush with the casting, A.

Through the centre of this cushion passes the hub, B, which is of quite ordinary construction and can be made to suit either a live-axle or chain-driven car. The hub itself carries a large flange, B¹, which is solid with it, and on this flange are a set of studs, B², which pass through slots, A², in the housing. When the hub-member, B, is in place, another flange, B³, is secured on the other side of the wheel by means of nuts, which screw on to the studs, B². The studs themselves also form distance-pieces, and thus prevent the flanges, B¹ and B², from being tightened up against the housing, A. About four-thousandths of an inch total clearance is allowed between these members in order to prevent seizing. It is, of course, the

Fig. 1.—The Middleton Pneumatic Hub.—View of a Car fitted with these hubs and shod with solid rubber tyres. The neatness and small space occupied by this device is apparent from this photograph.

ever, belongs to a class which is at present in the minority, for the resilience of this wheel is obtained from a pneumatic cushion surrounding the hub in much the same way that a pneumatic tyre surrounds the felloe.

The simplicity of this arrangement is not the least of its desirable features, and the substitution of a pneumatic cushion for metallic springs, also, will doubtless be regarded with favour by many who have cause to appreciate the shock-absorbing qualities of compressed air. A pneumatic tyre *inside* the wheel is, of course, in a very different condition, dynamically, from what it is when it forms the periphery and comes in direct contact with the road. While in the interior, it cannot, for instance, "swallow" the stones and other small obstacles which constantly oppose it, but, on the other hand, there appears to be no reason why many of the inherent advantages of pneumatic tyres should not be retained, although the difficulties of doing so are considerably greater than is apparent at first sight. There is, however, the immunity from punctures, and the increased life which such an arrangement affords, and these advantages, in themselves, not only remove the most important drawbacks to pneumatic tyres, but offer some compensation for such reductions in resilience as this method of construction entails.

The Middleton Pneumatic Hub, which has been put on the market by the Middleton Pneumatic Hub Syndicate, is of very simple construction, as is evident from our photographs, which show it fitted to a car (Fig. 1), and also separately (Figs. 2 and 3). There is but little difference in appearance between it and any ordinary motor car wheel, for it is very compact and also permits the use of wood spokes, which is rather the exception than the rule in resilient wheels. The wheel proper is, in fact, built up on very much the same lines as an artillery wheel, except that the housing, A, is of much larger dimensions and has the spoke bases independently fixed into sockets, A¹, cast to receive them.

flanges, B¹ and B³, which have to withstand all the side strains which are imposed on the wheel.

The drive from the engine, which comes first upon the hub-member, B, is transmitted through the studs, B², to the housing, A, and then to the wheel proper. In future models some soft rubber or other resilient substance will, we understand, surround these studs in order to cushion their action against the walls of the slots, A².

Fig. 2.—The Middleton Pneumatic Hub.—Closer view of a wheel, fitted with the device, showing the Pneumatic Cushion, C, in place.

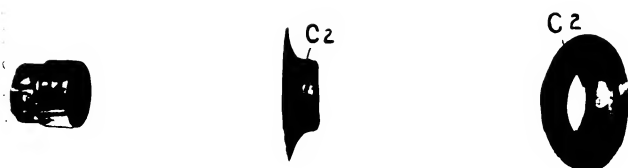


Fig. 3.—The Middleton Hub.—Views of the component parts separately.

For the purpose of inflating the cushion an ordinary tyre-valve, C¹, is provided, and this projects through a hole in the casting, A, so that it is accessible from the

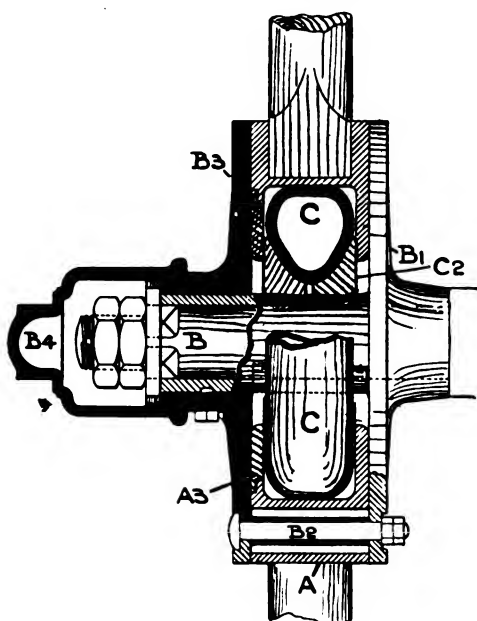


Fig. 4.—The Middleton Hub.—Sectional drawing showing the construction of the Hub.

outside. The pressure to which the cushion is blown up depends of course on the weight of the car, but it is generally somewhere between 120 to 200 lbs. per square inch, and is always sufficient to prevent anything but a very slight eccentricity of the hub under its working load. The cushion is made on the same principle as an ordinary single tube pneumatic tyre, and its walls are particularly stiff in order to prevent them from spreading over their metal flanges, C². This spreading was one of the difficulties encountered in the early experiments with this device. Under the present system, the walls of the cushion are thoroughly well supported, externally, for the same reason, and it is now practically impossible for any "bellows" action to take place in them, even under the most severe loads; nor can much deflection occur, either in the base or periphery of the cushion, on account of the very large areas which are in contact.

Creeping, which would speedily ruin the valve-stem, C¹, is prevented by the very simple expedient of allowing the flanges, B¹, to be a free fit about the hub, so that the latter can turn independently of them until the driving-pins, B², touch the sides of their slots.

Table of Reference Letters for the Middleton Pneumatic Hub Illustrations.

A	Housing.	B ²	Driving-pins.
A ¹	Spoke sockets.	B ³	Detachable flange.
A ²	Driving slots.	B ⁴	Hub-cap.
A ³	Detachable plate.	C	Pneumatic cushion.
B	Hub.	C ¹	Valve for inflating C.
B ¹	Flange fixed on B.	C ²	Metal side-flanges for C.

THE interests of heavy traffic are to be represented before the Royal Commission by the Motor Van and Wagon Users' Association, who have arranged for two of their members to be heard by the Commission next week. The heads of the evidence which the members in question will furnish refer to licensing, in regard to which they will make a proposal that each heavy car should be licensed at a cost of 5s. per ton on the combined registered axle weight, and suggest that the sum so obtained should be paid into a central fund, which fund is to be disbursed for the maintenance of roads of a prescribed standard of strength. As regards the wheel and tyre dimensions, the Association are opposed to any alterations for the present, no fair trial, they think, having been given to the existing regulations and users having been put to considerable expense in complying with the Local Government Board's order in this respect.

The representatives will urge the abolition of the speed limit in regard to vehicles shod with resilient tyres, on which point we trust they will be successful, as success will mean the removal of the present 12-mile limit for motor 'buses. A more questionable demand which the Association is to make by its representatives before the Commission, is that any hauler or user of heavy traction vehicles should have the right to have roads opened up to demonstrate whether they are suitably constructed or not, provided he pays the cost of such undertakings. The Association seem to forget that the general application of this principle, if permitted, would be to cause a very serious amount of annoyance to other road users. The Association will further urge that the licensing of omnibuses should rest with the County Councils and Borough Councils, with a right of appeal to the Local Government Board.

FURTHER evidence of the feeling amongst the inhabitants of Andover, in regard to the "Handover" Bench, and the associated police trap which provides it with victims, is furnished by the fact that the Town Clerk of Andover has been writing to the papers, pointing out what most people are aware of, that the townspeople of Andover have had nothing at all to do with the campaign, and that the police trap has been organised by the County Police, who are under the county authority and are not controlled by the town. It is a comic opera comment on our institutions when a reactionary pig-headed Bench and a subversive constabulary blockade a country town and successfully keep out of it guests which the townspeople are only too anxious to welcome.

AT OLYMPIA.—One of the luxurious 1906 White Steam Cars, fitted with a removable Brougham Top, which has an extended Canopy carried forward to meet the wind screen in front, and so afford a large amount of protection to the driver.

Driving Examinations.—Additional particulars are issued of the Automobile Club examinations for driving and mechanical proficiency certificates. The club has already held several examinations in London and another is to be held at 119, Piccadilly, London, W., on November 20th, and continued each day up to and including the 24th. These examinations have been primarily arranged to meet the convenience of any candidate from the provinces who may be in London during the Olympia Show week. Already several examinations have been held in the provinces, and in addition to the following list further provincial examinations will be arranged for the North of England and Scotland early in the New Year:—

November 28th, Antelope Hotel, Poole, Dorset; November 29th, Castle Hotel, Southsea; November 30th, Warne's Hotel, Worthing; December 1st, Fleur-de-Lis Hotel, Canterbury; December 5th, Mulliner's Carriage Building Company, Northampton; December 6th, Suffolk Hotel, Bury St. Edmunds; December 7th, Maid's Head Hotel, Norwich; December 8th, Saracen's Head Hotel, Lincoln.

ARBITRATION is one of the new developments in connection with the Motor

OLYMPIA.—Front view of the Delaunay Belle, showing the very neat eccentric-shaped which is one of the most distinctive features of these well-made vehicles.

Union, who have taken the important step of undertaking to arrange for the appointment of arbitrators in disputes. By this means many differences between automobilists and dealers will probably be dealt with in a much more satisfactory manner than by taking the disputes into the law courts. In a case which has arisen between a member of the Union, at Swindon, and a motor car dealer, at Epsom, the Union, regarding the case as a proper one in which they can act, have nominated Mr. Walter Bourke, M.I.C.E., of Maidenhead, as arbitrator.

AT OLYMPIA.—The new 20-25-h.p. Mercedes Car, modelled on the lines of the popular 18-28-h.p. Chassis which it supersedes this year.

WE notice that a morning illustrated paper has apparently attempted to adapt our suggestion about the London County Council arms, by producing an illustration of an imaginary shield more or less on the same lines. Alas, our contemporary has made a terrible hash of its heraldry, and altogether we are quite thankful that the paper in question omitted to make any acknowledgment to THE AUTOMOTOR JOURNAL.

IN recognition of the public-spirited action of Mr. Frederic Coleman in recently appealing against his conviction at Colchester, for driving at a speed dangerous to the public, the Motor Union

AT OLYMPIA.—One of the latest 24-40-h.p. Fiat Cars, fitted with handsome Limousine Landaulette body.

THE statistics of motor vehicles for the County of Essex, from January 1st to September 30th, have been returned by the registrar. The total amount received in fees is £2,118 3s., from which, after deducting expenses of administration, £472 17s. 8d., there is a nice little balance to the benefit of the county of £1,645 5s. 4d.

LORD WINDSOR, whose action in refusing automobiles admission to the parks last summer was a subject of much discussion in the Press, has been promoted to an Earldom, and is now Earl of Plymouth. A sprightly contemporary, which is still angry with his Lordship's action, suggests that the Earldom of Barparks would have been an even more appropriate promotion—it would certainly have a thoroughly Thackerayan sound.

AT OLYMPIA.—English 'Buses for Foreign Service.—The Società Romana Tramways Omnibus, constructed by Messrs Thornycroft and Co., on the same lines as vehicles exhibited by them at the Show.

have made a contribution of 15 guineas towards Mr. Coleman's legal expenses.

MR. R. L. JEFFERSON, who left Coventry some weeks ago to travel by motor car to Constantinople, arrived safely at his destination last week. This is the first occasion of a motor car having crossed Turkey.

AT OLYMPIA.—The Harper Car.—A modified form of Cadillac Car re-designed and constructed with Cadillac machinery by the Harper Motor Co. Its special feature is its system of control, by which each speed is brought into action by a foot-pedal, the left foot being used solely for this purpose, and the right foot being, therefore, free to operate the brake.

THE Cadillac Automobile Company of Detroit, U.S.A., have changed their name to the Cadillac Motor Car Company, and increased their capital from 300,000 dollars to 1,500,000 dollars. At the same time they have amalgamated with the Leland and Faulconer Manufacturing Company. This latter concern has hitherto always made the Cadillac engines, and the combination, therefore, should be of considerable importance to both companies.

E.C., and give the fullest particulars and details in clear and succinct language.

THE Wolseley Motor Car Company have forwarded a donation of £50 to the Legislation Fund of the Joint Committee of the Automobile Club and the Motor Union. This Fund now amounts to £3,500.

A PLEASING example of police methods is provided by an occurrence which took place recently on the Portsmouth Road. A steam roller was at work over a considerable stretch of the highway, rolling in freshly-deposited flints, and, of course, all automobiles which had to negotiate this stretch of "prepared track" could only do so at a walking pace. Recognising the characteristics of ordinary human nature with a subtlety worthy only of Russian *Agents provocateurs*, the police laid a trap a little on the London side of the steam roller, on a perfectly open stretch of country where no one was about. There is a contemptible element of ingenious meanness about this that positively thrills one.

AT OLYMPIA.—An up-to-date Touring Car.—View of one of the new 18-h.p. White Steam Vehicles, fitted with cape cart hood and roomy side entrance body. A description of the latest chassis has already appeared in our columns.

THE Automobile Association inform us that the cyclist patrols on the Portsmouth Road are being now directed and controlled by Mr. Thring Robinson, a member of the Executive Committee. In addition the Association are arranging to establish patrols on any roads within thirty miles of Charing Cross, in regard to which they shall receive information that such patrols are advisable. Anyone, therefore, who detects a previously undiscovered or newly organised "motor car trap" within this distance of London should write to the Automobile Association at 18, Fleet Street,

A new design in motor car body work, which has been placed on the market in Germany by Messrs. Dick and Kirschten, of Offenbach.a.M.

supporter of the Mercedes make of car. Mr. Dinsmore was the son of Mr. W. B. Dinsmore, the founder of the Adams Express Company.

By the sudden death in New York last week of Mr. Clarence Gray Dinsmore, at the age of fifty-eight, the automobile world has lost a figure familiar at practically every race meeting of any consequence either on the Continent or in America. Mr. Dinsmore was the official delegate of the Automobile Club of America at the international meetings of the recognised clubs, and was a particular

AT OLYMPIA.—Two De Dion Commercial Vehicles.—An 8-h.p. Delivery Van and a 12-h.p. Lorry. The smaller vehicle has a single-cylinder engine, while the larger engine is of the twin-cylinder type.

A MOTOR PATROL BOAT.—Messrs. S. F. Edge have just supplied a foreign Government with this boat for coastguard use in the prevention of smuggling. It is a 35-ft. craft, built by Saunders, and has a 70-h.p. Yarrow-Napier Engine, of which the normal speed is only 800 revs. per min. The specified speed of the boat is 15½ knots.

AERONAUTICS.

An Aeronautical Gordon-Bennett.—Mr. James Gordon-Bennett, as announced at the Aero Club of France recently by the Comte de la Vaulx, has decided on dedicating a work of art, to cost 25,000 francs, to the purpose of creating a great international aeronautic contest on somewhat similar lines to those in accordance with which the Gordon-Bennett automobile race was originally organised. The trophy will be competed for the first time when the first competition of the Aeronautical Federation takes place in Berlin. The rules are now being drawn up, and it is proposed that the Aeronautical Gordon-Bennett should be competed for annually. We think there can be little doubt as to who will win the first competition, if they condescend to compete, but no doubt the existence of a trophy of the kind will have a considerable effect in stimulating enterprise in this direction.

A MODEL of the "Lebaudy" airship, which has recently completed very successful trials, will be on view at the Continental Tyre Company's Stand No. 256 at the Olympia Show. The fabric of the gas-vessel of the airship was supplied by their Hanover house, and has been an important factor in the successful results obtained.



A SERIOUS fire took place in Birmingham last week on the premises of the Dunlop Rubber Company, when considerable damage was done to the stock and buildings. In addition, the fire spread to the premises of the Birmingham Aluminium Castings Company.

DURING the hearing of a motor car case at Chertsey recently, a constable mentioned that a lady in one of the cars he stopped inquired where the police were stationed. "I told her," he said, "in the hedges, and she then wanted to know 'if there were any more hedges.'" The fair motorist was evidently not a careful reader of the automobile Press and not very observant of English landscape.

PUBLICATIONS RECEIVED.

The "Practical Engineer" Pocket-Book, 1906. Manchester: The Technical Publishing Co., 287, Deansgate. Price 1s. net: leather gilt, with diary on ruled section paper, 1s. 6d. net. Postage 2d. extra.

The "Practical Engineer" Electrical Pocket-Book and Diary, 1906. Manchester: The Technical Publishing Co., 287, Deansgate. Price 1s. net: leather, gilt, with diary on ruled section paper. 1s. 6d. net. Postage 2d. extra.

Ordnance Survey Maps. England and Wales. Sheets 19, 23. Wilts, Berks, Hants and surrounding districts. Scale 4 miles to 1 inch. London: Board of Agriculture and Fisheries, 4, Whitehall Place. Price 2s.

Patent and Similar Protection for Inventions, Designs and Trade Marks. Sixth Edition. London: Gedge and Feeny, 60, Queen Victoria Street, E.C.

Catalogues.

Thornycroft Touring Cars. John I. Thornycroft and Company, Limited, Chiswick.



A COVENTRY medical practitioner, in an interesting communication to the Swift Motor Company, places the motor car in a very favourable light compared with the cost of horses' keep. He states, "I find the cost of petrol and oil for July, August, and September comes to £5 16s. 6d., as compared with £14, for corn, hay, and straw for a like period, for two horses." The above supplies a practical object lesson to doctors who are still wavering between two opinions, the retention of their horses, or the adoption of a motor car.

A Wolseley Light Delivery Van.—This handy little car has become a familiar sight in the West-End of London, and it represents a type of commercial vehicle which deserves to become very popular on account of its handiness in traffic. The Chassis is the same as that of the famous 6-h.p. Wolseley Pleasure Car.

CLUBS AND ASSOCIATIONS.

Yorkshire A.C.—The Club opened its winter season last week with a social evening at the headquarters, the Great Northern Hotel, Leeds.

Mr. E. H. Hepper presided, and in the course of a few remarks said that the view that anti-motorists held, that motorists were having their day, and that very shortly their time would have gone by, did not appeal to him. He felt assured that at the end of the sittings of the Royal Commission they would find that motorists would have more latitude than in the past.

During the evening an illuminated address was presented to Mr. H. R. Kirk, one of the club's vice-presidents, as a memento of the occasion of the first club run of the season to Windermere, when he entertained the members of the club and their friends. In making the presentation, Mr. Hepper said that Mr. Kirk was essentially a practical motorist. In his time he had had about twelve cars of different makes. He was not only a vice-president, but he brought a practical value to the office of vice-president. He had gone beyond the mere name, and had done a great deal for the benefit of the Yorkshire Club and for motoring, not only on the road, but also on the water.

Mr. Kirk, who met with a very hearty reception, briefly thanked the members.

A silver table lamp with electric fittings was presented to Mr. Hey, the hon. treasurer of the club, in commemoration of his recent marriage.

A capital programme of songs, given by a number of friends, enlivened the evening's proceedings.

Essex Automobile Club.—A meeting of the provisional committee appointed by the Motor Union to form an automobile club for the county of Essex, was held on Wednesday last, at the Great Eastern Hotel, Bishopsgate Street.

Mr. Burnett Tabrum, J.P., was elected to the chair, and Mr. E. C. Tijou was appointed hon. secretary, *pro tem.* A code of rules was drawn up, and arrangements made for a general meeting of the automobilists to be held on Wednesday, November 29th, at the same venue, to formally establish the club. Information on all points may be had upon application to the Secretary of the Motor Union, 16, Down Street, Piccadilly, W., or to Mr. E. C. Tijou, 3-4, Fowkes Buildings, Great Tower Street, E.C.

A list of the members of the provisional committee was given by us in our issue of October 28th.

AT OLYMPIA.—"Sylvia."—A 20-foot motor-boat, engined by Messrs. Thornycroft with one of their 6-h.p. Marine Sets. This was one of the Thornycroft "fleet" at the Reliability Trials this year.

Hartlepool's A.C.—At the first annual dinner of the club, which took place last week at the Grand Hotel, West Hartlepool, Mr. C. E. Smith, one of the oldest automobilists in the district, presided over a big muster of members and guests. The speeches were short, in order to allow full scope to an excellent musical programme which was provided.

The toast of the evening, success to the club, was in the hands of Mr. H. M. McLean, who mentioned that the club had only been in existence two years, and now had a membership of forty.

The chairman, during a much appreciated speech in reply, in mentioning the benefits which had accrued from the introduction of mechanical vehicles, instanced Coventry, which he said was practically a dead town until it developed the cycle and motor industries.

Brighton and District Automobile Association.—Under this title a new Association has been formed at Brighton for the purpose of dealing with matters vitally affecting the interests of automobilists in the district. The rules are modelled upon those of the Automobile Association, the objects in the main being the same. A defence fund is to be created for the purpose of defraying the legal costs of members attacked. Mr. Blackburn, the Secretary, is organising an automobile exhibition in Brighton to take place in the Dome and Corn Exchange next February. The whole of the gate money at this exhibition will be presented to the Association to form the nucleus of the defence fund. As Mr. Blackburn a few years ago promoted a similar exhibition which resulted in the Hull Royal Infirmary benefiting to the extent of £480, the Association have a pleasant prospect before them of being able to bank a substantial amount as the result of Mr. Blackburn's fresh efforts. Lord Turnour has consented to be President of the Association, and the first members of the Committee are Captain W. N. L. Davidson and Messrs. Herbert Handley, Alfred Gregory (Hove), Henry White, J. H. Thompson, M. Holford-Strevens, C. Duval, C. A. Scott, A. Chopping, J. A. Lereculey, Henry Rogers, Horace North, Jos. Snuggs, R. F. Round and C. B. Pemberton. The Secretary is Mr. W. Blackburn, Hon. Treasurer, Mr. Walter Tilley, and the Gloucester Hotel has been selected as headquarters. The subscription for car owners is 2 guineas, for motor cycle owners 1 guinea, hotel proprietors 1 guinea, and boarding-house proprietors 10s. 6d. These subscriptions include the free use of the North Brighton Motor Garage, Park Crescent Place, under certain conditions.

Photo by Argent Archer.

Last week we gave a few particulars in regard to the new Motor Academy, which has been installed at Boundary Road, Notting Hill. Above we give a photograph of some cars in the driving school. In this, some of the obstacles, in the form of dummy dogs, &c., will be noticed; the white lines are for the purpose of enabling drivers to keep within certain points under specific driving conditions.

RACES, RECORDS, AND TRIALS.

The "Targa" Florio.—The running of this race has been now officially fixed to take place on May 5th next year, over a 500 to 700 kilometre course in Sicily. Six cars of the same make only may be entered, of which three may be engaged by the manufacturer, and three by private owners. But failing entries from the manufacturer, an equivalent number may be entered by private owners so as not to exceed the total of six. Entries will close twenty days prior to the race for manufacturers, and fifteen days for private owners. The latest model of each car will have preference over previous years' types in acceptance of entries.

French Tyre Trials.—The rules have been issued by the A.C. de France governing their Tyre Trials, which are to be held next year. They are only open to makers of wheels and tyres. Each maker may enter a maximum of four cars, the four tyres on each car to be of one pattern. The entry fee is 3,000 francs up to February 15, and double fees up to May 15. The distance of the test will be over 1,000 to 1,500 kilometres, either in one or two stages. The weight of the chassis of each car is to be 1,000 kilos. minimum, 1,200 kilos. maximum, this weight including the carriage body and practically everything except tools. In addition each car must carry 400 kilos. of ballast. Each vehicle will be allowed four inner tubes for re-changing, and all repairs, &c., will be carefully noted throughout the run. There will be two classes, viz. :—

1. Pneumatic tyres, properly so called, without any other elastic material in them except gases under pressure contained in some sort of envelope or case between the rim and the surface on which it runs.

2. Tyres of all other systems, including solid rubber tyres and spring tyres, or a combination of the two principles. Entrants in this class must declare beforehand what parts it may be desired to change, and how often, during the test.

The winner will be the car covering the specified distance in the shortest time, subject to his presenting his car at the finish to the officials and complying (1) with the necessary conditions under the rules as regards weight, (2) with the wheels and the tyres and other necessary parts in proper condition, and in position with seals intact as before the start.

Flying Kilometre Record.—On Monday last, on the Salon-Arles Road, near Ostend, Frederic Dufaux, on the 4-cylinder 150-h.p. Swiss-built Dufaux racing car (Michelin tyres), put up a new official Continental record for the flying kilometre, his time being 23s., equal to 156.52 kiloms. per hour. This beats Rigolly's record at Dourdan by $\frac{2}{3}$ s. *Unofficially* Baras has been timed with 21 $\frac{2}{3}$ s. in 1904 for the distance. The world's record of 21 $\frac{2}{3}$ s. is, therefore, still with Clifford Earp.

HEMERY having made proper explanations and apologies in connection with the episodes which occurred in Italy during the Brescia week, the Italian Automobile Club have decided to cancel his disqualification recently announced. Hemery is, therefore, now again free to take part in international racing.

MONT CENIS hill-climb, next year, will take place at the end of June, and Brescia week from August 27th to September 2nd, this meeting winding up with the Florio Cup on September 2nd.

MOTOR CYCLING.

THE "Tour de France" for motor cycles and voiturettes organised by *Les Sports* is announced to take place from May 13th to 24th next. The three classes are light motor bicycles, $\frac{1}{3}$ rd-litre motor bicycles and voiturettes. The stages are :—May 13th, Paris-Tours; May 14th, Tours-Bordeaux; May 15th, Bordeaux-Toulouse; May 16th, Toulouse-Nîmes; May 17th, Nîmes-Marseilles; May 18th, Marseilles-Gap; May 19th, Gap-Saint Etienne; May 20th, Saint Etienne-Besançon; May 21st, Besançon-Nancy; May 22nd, Nancy-Reims; May 23rd, Reims-Amiens; May 24th (Ascension), Amiens-Paris.



COMMERCIAL POINTS.

MR. E. H. LANCASTER is giving away, at the Clement stand, No. 59, during the Olympia Show, Clement horse-power indicators, by the means of which the horse power of any engine can be ascertained.

THE Sirdar Rubber Company, Limited, advise us that owing to their increased output, they have not found it necessary to raise the price of their tyres, either pneumatic or solid, in consequence of the rise in rubber. We also learn that the Vanguard omnibus, running from London to Croydon, Redhill, and Brighton is fitted with Royal Sirdar rubber tyres.

MESSRS. TEMPLETON BROS., of Glasgow, advise us that they have fitted up extensive premises at 535, Sauchiehall Street, nearly opposite the Grand Hotel at Charing Cross, as Motor Show-rooms and Garage.

MR. JOHN HARGREAVES has just secured a 29-h.p. Hotchkiss car with a double landaulette body, and Lady Idina Brassey has purchased a smart little 10-h.p. Vulcan car, both of these being arranged through the medium of the agents, the London and Parisian Motor Company, Limited.

WITH reference to our article on the latest Gratz Speed Indicator, which appeared last week, the Gratz Patents and Engineering Syndicate write us that the British Electric Equipment Company have not been granted the sole agency for these instruments.

WITH reference to Mr. R. L. Jefferson's drive on a car from Coventry to Constantinople, the United Motor Industries, Ltd., advise us that the car was fitted with a pair of their Model R "Castle" lamps, "Castle" tail lamp, "Castle" porcelain plugs, "Castle" double-coil horn, "Castle" induction coil, and "D" lubricating oil.

MESSRS. SHIPPEY BROTHERS inform us that they have been appointed sole agents for England and the Colonies for the sale of the new "Michigan" Petromobile Cars, and that the first shipment of 12-h.p. and 16-h.p. cars have arrived in England, and are ready for trial runs.

MESSRS. A. DARRACQ AND CO., LIMITED, advise us that their luck in the ballot for space at the Olympia Show did not give them the opportunity of securing a stand in the main building. But they have endeavoured to make up by special means to get their position, 125, in the Annexe, known. A full range of 1906 model Darracqs will be on view, and in addition Hemery's car, with which he secured the Ardennes Circuit and the Vanderbilt Cup Races, will be staged.

MESSRS. RENNIE AND PROSSER, LIMITED, of Mitchell Street, Glasgow, have been appointed sole agents for Scotland for Panhard and Levassor cars, under licence from Mr. Harvey du Cros, in addition to being appointed official repairers in Scotland to the firm. In view of the methods adopted by Messrs. Rennie and Prosser, Mr. Du Cros will not, we learn, think it necessary to send his Panhard travelling repair-shop to Scotland. They have also been appointed sole agents for Mercedes cars for Scotland with the exception of three counties.

WE learn that Messrs. Clarkson, Limited, have received orders for fifteen more of their steam omnibuses for running in London. It will be remembered, under this system, paraffin instead of petrol is used for fuel.

COMPANY DOINGS.

Argyll Motors, Limited.—Mr. W. Alexander Smith, presided at the annual meeting of Argyll Motors, Limited, held in Glasgow last week. In his remarks to the shareholders, he stated that the profits of last year, which enabled them to pay an ordinary dividend of 10 per cent. was the more satisfactory as every shilling had been earned in the old Hozier works. The new capital had, as a matter of fact, been a burden from which the company had derived no practical benefit up to the date to which the accounts referred. It would be gratifying to the shareholders to know that everything had been debited that could be possibly charged in the accounts, in respect to construction and application against revenue. Their accounts, in fact, had been treated most drastically in this respect, including the depreciation which had been written off. £3,000 had been placed to special reserve for the Preference shareholders, and £4,000 had been placed to general reserve.

With respect to the new works at Alexandria, these were now a busy hive of industry. They had a large proportion of machinery working, turning out material for the 1906 season. He was confirmed in his opinion that with all their advantages in the new works they were in a position to lick the world, and it would be no fault of theirs if they did not take full advantage of the situation. Their prospects were of the best. They had on their books orders to the value of from £500,000 to £600,000. Last year they turned out exactly, to a car, twice as many as they had done the two previous years, and seven times their trade of three years ago, and he hoped that next year they would again double their output. The whole of this success he claimed was due alone to the real merits of the Argyll car.

The accounts and the recommendation of the directors were unanimously passed, with a cordial vote of thanks to all those concerned in the management.

Daimler Motor Company (1904), Limited.—All-round Reduction in Prices.—At the meeting of the shareholders of the Company last week in London, presided over by Sir Edward G. Jenkinson, K.C.B., chairman of the Company, the accounts and recommendations of the directors in regard to dividends, as reported in our last issue, were unanimously approved.

The chairman, during a very long and clear speech, reviewed the affairs of the Company from the first year after the reconstruction, explaining what had been done since that time. By way of showing the progress made, he pointed to the gross and net profits for the previous year, and for the past year, as follows:—

	Gross.		Net.
1903-4 ...	£24,760	...	£7,334
1904-5 ...	£106,313	...	£83,167

The secret of the success they had had, he attributed to the fact that they were able, with their capital in hand to do in the past year what they had never been able to do before, viz., to manufacture cars for sale in advance of the season, with complete confidence that they would have no difficulty in selling them when the time came. They were able also to spend money on the extension of their works and the purchase of machinery, thereby increasing the output. The results were seen in the accounts presented. Up to September 30th, 1904, little progress had been made in actual output, but the past year had seen a great stride forward. Their floor space was increased by 75 per cent. over that of 1903, and when their extensions were complete, about December, the increase would be 240 per cent. The value of buildings in August, 1905, had increased 98 per cent. over the value in August, 1901, and the buildings being erected, when completed in December, would increase that value to 273 per cent. Plant and machinery had increased by 28 per cent., from September, 1904, to August, 1905, and the increase by the end of December over September, 1904, would be 82 per cent., and over September, 1901, 105 per cent. By these extensions they would be enabled to quadruple the output capacity of their works. Their sales receipts were 120 per cent. better than in 1904, and 305 per cent. better than in 1901.

In mentioning the latest honour which had been bestowed upon the company by His Majesty the King by an order for one of the 35-h.p. cars, he stated that this was the model which, throughout the past season, had achieved such phenomenal success in various hill-climbing and speed contests. It was the seventh car which the company had had the honour of constructing for His Majesty. The Prince and Princess of Wales had also given them orders for cars, the former for a 35-h.p. car and the latter for a 28-h.p. landaulette.

The results of the contests in which they had competed had demonstrated the uniformity in running of their cars, as almost invariably their competing cars finished within a few seconds of each other.

Coming to the 1906 type, he mentioned that there would not be any alterations of any moment. They would have nine distinct types for sale. These cars would be of three lengths, viz., 8 ft. 6 in., 10 ft., and 11 ft. wheel-base respectively, and each of these three lengths would be fitted with one of three sizes of engines, viz., 28-h.p., 30-h.p., and 35-h.p., thus making nine types. Mr. Martin, their engineer, and his staff had succeeded in making a large majority of parts interchangeable for these nine types of cars, which would help their customers very materially in being able to obtain new parts without difficulty.

The chairman also announced the very considerable reduction in the future prices of the company's cars. The 28-h.p. chassis, which was £700 in 1905, is to be £590. The 30-h.p. chassis is to be reduced from £825 to £690, the 28-h.p. chassis from £800 to £690, and the 30-h.p. complete car from £1,010 to £875. By thus reducing the price of the cars, they would be in a position to compete successfully with the manufacturers of large cars, chiefly French, and would, in addition, attract many more customers.

The company, he announced, had decided to embark on a new policy by trying the *depôt* system, in the country, and had decided to open two *depôts* in Nottingham and Manchester, instead of dealing through agents. These *depôts* were well equipped with modern machine tools and a qualified staff of mechanics in order that all their repairs might be executed at moderate charges. He was glad to say that during the last three years English manufacturers had come to the front, and on the whole were forging ahead more rapidly, he thought, than the foreigners, but this was mainly in low priced cars. In the trade in large, high priced cars such as those manufactured by their company, the foreigner was more than holding his own, a fact due to the home trade being unequal to the demand in this class of car. They, therefore, must not be content with only lowering their prices, but they must also increase their output. At present their energies were concentrated on the manufacture of large cars, because they could sell as many of these as they could turn out, but they were quite prepared to undertake other work should there be a falling-off in the sale of the large cars. They were ready with types of light cars, delivery vans, and public service vans, and luries.

The chairman later pointed out that it was necessary to pay for the extensions in the works now in progress which were approaching completion as well as to provide a sufficient working capital. The Board had therefore decided to make an issue of 20,092 ordinary and 30,800 preference shares, which would be offered to the shareholders *pro rata* at a premium of 7s. 6d. per share, which was equivalent to giving the shareholders, in addition to the dividends already recommended, a handsome bonus, as the market premium was above the 7s. 6d., at which premium the shares were to be issued to the shareholders. Before concluding, the chairman stated the directors wished to acknowledge, in the success which had attended the working of the business, the services rendered by the managers, the secretary, and the staff.

In conclusion he said that although they had had a remarkably prosperous year, they must be prepared for all contingencies and must take care always to have a provision for bad or altered times. Under prudent management and the exercise of foresight, the business should remain on a sound and profitable footing, and continue to be a great success.

Mr. Edward Manville, M.I.E.E., in seconding the passing of the accounts, drew attention to one or two points which he thought of some importance. He referred to the fact that the board of the company had always set their faces against, in their opinion, wasting time and money on the building of racing cars. It had been held amongst a number interested in the trade, both abroad and at home, that in order to make a successful touring car you must first of all build successful racing cars. They had produced what had proved to be an exceedingly successful type of touring car, without ever constructing or attempting to construct a racing car, so that they had, he thought, at all events succeeded in proving that it was not an essential point towards success in the manufacture of touring cars. Mr. Manville, continuing, made the very gratifying announcement that just before the meeting of the shareholders important contracts for the export of a number of the company's cars into other countries had been entered upon. One, at all events, of those places was where some of the best motor cars in the world were supposed to be produced. Given skilled and intelligent management, as exemplified amongst their officials, the financial results of building cars were at least equal and perhaps superior to those attained abroad. He particularly wished to draw attention to the fact that the company was an English one, in the true sense of the word, viz., that not only was the capital entirely in English hands, but the cars were made by English workmen in England, thereby giving employment to the British mechanic, and assisting to establish an industry in this country. Mr. Manville concluded his remarks by a very high tribute on behalf of himself

and the other directors to the extraordinary application which the chairman of the company had always shown towards the interests of the shareholders.

The chairman subsequently, after replying to a few questions, drew attention to the enormous obligation which the shareholders were under to those concerned in the actual working of the company's affairs. He specially referred to Mr. Martin, the engineer; Mr. E. M. C. Instone, who carried the burden of the commercial work on his shoulders; the secretary and his staff, and to Mr. Stratton, the London Manager of the Company, to all of whom were due the heartiest thanks of the directors and the shareholders. He said he thought that no board could have a staff who had so entirely at heart the interests of the company, and who were so keen in their work, and so desirous of laying good results before the shareholders. In this category must also be included the foreman of the works. This resolution of appreciation was seconded by Captain C. C. Longridge, and carried with acclamation.

Mr. Percy Griffiths, M.P., in proposing an extra remuneration to the directors of 2½ per cent. on the net profits, under the provisions in the articles, said the board as a whole had rescued the company from a state of practical bankruptcy, and had brought it to its present prosperous condition, and made a national asset of the concern.

This proposition was carried unanimously, and the chairman then proposed the confirmation of the election of Mr. A. H. E. Wood and Mr. G. S. Barwick as directors of the company, who had during the past year been added to the board by the directors.

A. Darracq and Co., Limited.—The report of this company shows a net profit of £152,664, out of which the directors recommend a dividend making 20 per cent. for the year, to transfer £100,000 to reserve, and carry forward £27,174. Large additions have since the date of the last report been made to the company's works and plant at Suresnes, France, which has led to a considerable increase in the company's business. The full benefit of these additions will not, however, be felt until the 1906 season. The

purchase of the big premises in Lambeth, which we announced recently, is also confirmed in the report.

Rover Company.—At the meeting of the shareholders last week, presided over by Sir Frederick Dixon-Hartland, M.P., at Coventry, a dividend of 10 per cent. was declared. The chairman confirmed the great development of the business which had taken place during the past year in the motor department, the manufacture of motor cars having proved satisfactory, and he said that this branch of their business had before it a very bright future.

NEW COMPANIES REGISTERED.

British Buffalo Marine Motor Company (Limited).—Capital, £5000 in £1 shares. First directors, W. A. Cloud, H. J. Nichols, A. M. I. M. E., W. H. De Russett, C. H. De Russett, and E. W. De Russett.

Chiswick Motor Omnibus Company (Limited), 333, High Road, Chiswick.—Capital, £5,000 in £1 shares. First directors: C. T. Sutton, E. de Gruchy, R. Emerson, T. P. Singer, and J. Kent.

Gnome (Limited).—Capital, £100 in £1 shares. Object, to take over the business of the Gnome Motor Car Company, 110, High Street, Manchester Square, W.

Seymours (Limited), 20-22, Brompton Road, London.—Capital, £20,000 in £1 shares (10,000 seven per cent. preference). Object, to establish agencies for buying and selling motor cars, &c. The first four directors are to be appointed by R. S. Harger.

Stevens Tyre Company (Limited), 9, Fenchurch Avenue, E.C.—Capital, £2,500 in £1 shares.

Strand Motor Company (Limited), 231 and 232, Strand, W.C.—Capital, £5,000 in £1 shares. Object, to carry on the business of tutors in motor car driving, engineering, and employment-bureau keepers. First directors, N. A. Medawar and C. E. Handley.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.L.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

24275. 15th November, 1904. Improvements connected with Motors and Driving Gear suitable for Motor Road Vehicles and the like. Frederick W. Lanchester, Armourer Mills, Montgomery Street, Sparkbrook, Birmingham. This invention relates to an improved construction of combined motor and change gear mechanism for power-propelled vehicles. It consists in an arrangement of motor in which eccentrics are employed in lieu of cranks, and in which a transmission shaft passing through the motor shaft to which the driving eccentrics are attached is adapted to be geared to the motor shaft either by a direct clutch or by epicyclic change gear, the transmission shaft being employed for the propulsion of the vehicle. There are five figures. Fig. 1 is a sectional elevation of a three-cylinder motor. The motor is constructed of the ordinary reciprocating type, but in lieu of a crank-shaft it is fitted with a hollow shaft, *a*, furnished with eccentrics, *b*; excessive friction is prevented by the employment of rollers, *c*, held in position by a suitable cage, *e*, between the eccentric and eccentric strap in the manner of a roller bearing. Passing through the hollow shaft, *a*, is a transmission shaft, *f*, which is furnished at one end with a sliding friction clutch, *g*,

reverse motion, as may be required. A series of three gears, as indicated by *j*, may be conveniently employed, consisting of reverse, low gear and compound gear, as employed on Lanchester cars.—October 25th, 1905.

2207. 4th February, 1905. An Improvement in Self-Propelled Road Vehicles, Heavy Motor Cars and the like. James H. Mann and Mann's Patent Steam Cart and Wagon Company, Limited, Pepper Road Works, Hunslet, Leeds. This invention consists in dispensing with the usual long rear or main axle having a road wheel at each end, and providing instead two short axles, one on each side of the vehicle, quite independent of each other, and driven by separate trains of gearing from an intermediate, or the crank or the driving shaft of the motor. Each axle has two bearings, and carries a single wide road-wheel or two narrow ones between the bearings. These short axles may revolve in the bearings, or be fixed in the same and the road wheels driven. There are four figures. Fig. 2 is a plan with the body removed; *aa'* indicates the inner frames or frame

tions for carrying respectively the ends of the short fixed axles, *ff', f'f'*. The wide road wheels, *g, g'*, are mounted loose on the separate independent fixed axles, *ff* and *f'f'*, respectively, and have secured to them the gear wheels, *h, h'*, gearing with the pinions, *i, i'*, driven by differential gearing from the motor of the vehicle. Radius rods are used to keep the gearing properly in mesh, and other radius rods are fitted to tie the springs, *e, e'*, to the inner frames to take any side strain. This invention has the advantage of obtaining great flexibility in the connection between the body or frame of the vehicle and the main driving road-wheels, and enables the road-wheels to adjust themselves better to the ordinary roadway.—October 25th, 1905.

Patent Specifications Published

Applied for in 1904.

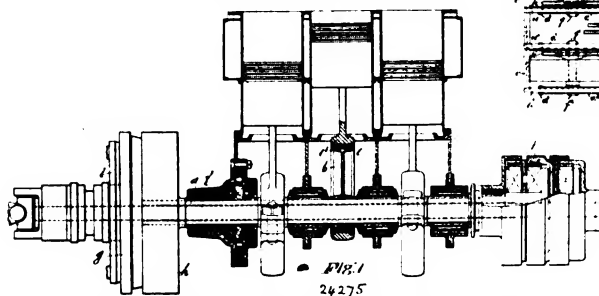
Published November 16th, 1905.

- 20,179. G. GREEN AND J. MILLER. Explosion engines and jacketing arrangements.
- 22,755. A. TAYLOR. Two-speed gearing.
- 23,339. H. KING. Motor bicycle construction and driving gear.
- 23,351. ANGLIAN MOTOR CO., LTD., AND J. B. MORRISON. Jointing and vulcanising rubber tubes.
- 25,349. A. E. BECK. Ignition device.
- 26,091. L. AND T. GAUTREAU. Carburettors.
- 26,250. J. MARSHALL. Change-speed-gear for traction engines.
- 26,664. A. H. HERDTLER AND A. E. BRUNEAU. Explosion engines for bicycles.
- 26,681. E. V. E. LOUET. Driving gear.
- 27,734. J. E. GIBBS AND F. H. SHEPHER. Fluid pressure motor and generator system.
- 27,737. }
27,738. }
27,738. }
27,996. T. COULTHARD AND OTHERS. Wheels.
- 28,093. MO-CAR SYND., LTD., AND J. S. NAPIER. Carburettors.
- 28,172. J. FIELDING. Intl. combn. engines.
- 28,200. T. GARE. Wheel tyres and treads.
- 28,600. T. W. MADDOX. Non-skidding device.
- 29,031. E. EDWARDS. Oil or gas engines.

Applied for in 1905.

Published November 16th, 1905.

- 275. G. A. ADAMS. Tyres and rims.
- 295. C. E. PILCHER. Vaporiser.
- 1,704. S. SHEPHERD AND T. A. VINCENT. Tyres.
- 1,805. J. C. MERRYWEATHER. Automobile fire engines.



adapted to engage a complimentary element, *h*, on the motor hollow shaft, *a*, so that the shafts, *a* and *f*, can be coupled together when required. Next the clutch, *g*, there is also provided a stationary brake ring, *i*. At the opposite end of the motor shaft, *a*, the central transmission shaft is arranged to be driven by epicyclic change gear designed to give either higher or lower or varying speed ratios or

plates, which in the present instance form an extension of the side shell plates of the fire box of the motor; *bb'* are outside frames, in the present instance channel or other iron. These frames are tied across by the cross beam or girder irons, *cc'*. Each of the frame plates or beams, *aa'*, *bb'*, carries connections, *d*, for the springs, *cc'* and *cc'* and *cc'*, respectively. The springs, *cc'* and *cc'* are provided with bolt connec-

The Automotor Journal, November 25th, 1905.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Nov. 29,	Practical Lessons on Motor Cars (Ladies' A.C.).
Dec. 6, 13	"
Nov. 30	" "Morals from Olympia," by Mr. Filson Young.
Dec. 4	" "Explosion and Flame in Relation to Motor Car Engines," by Dr. W. R. Ormandy (Manchester A.C.).
Dec. 6	" *Founders' Dinner, A.C.G.B.I.
Dec. 7	" *Dust Experiments, by Mr. W. Cooper.
1906.	
Jan. 17	Auto-Cycle Club Dinner.
Jan. 19-27	Birmingham Motor Show.
Jan. 26-Feb. 3	Crystal Palace Motor Show.
Feb. 1	" *4,000 Miles Tyre Trials.
Feb.	" *Lamp Trials.
March 9-17	Glasgow Motor Car Show.
March 24-31	Cordingley and Co.'s Motor Show.
Aug.	" *Van Trials.

Foreign Events (Trials, Races, &c.).

1905.	
Dec. 3	Coupe de Salon, Paris (Motor Boats).
Dec. 8-24	Paris Automobile Salon.
Dec. 12	A.C. de France Fête.
1906.	
Jan. 13-20	Brussels Exhibition.
Jan. 13-20	American A.C. Show, New York.
Jan. 17-20	Western Indian Trials.
Jan. 22-27	Ormond-Daytona Beach Races.
Jan. 26-30	Calcutta Motor Trials.
Feb. 3-18	Berlin Motor Show.
Feb. 3-18	Turin Automobile Show.
April 1-15	Monaco Motor Boat Exhibition and Races.
April-May	Milan Exhibition.
May 5	" "Targa" Florio (Sicily).
May 13-14	Tour de France (Motor Cycles and Voitures).
June 10-10	Herkomer Cup.
June 28-29	Kiel Motor Boat Races.

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

To Save the Motor 'Bus from the Promoter.

ALMOST too much praise of the motor 'bus is now appearing in the daily papers. Everybody has begun to recognise its value, and the numbers of the people who travel by it are legion. It has firmly established itself in popular favour, and if the number of motor 'buses plying on the usual routes were to be doubled or quadrupled we think we should be quite safe in asserting that they would all be full of passengers. The type of praise, therefore, of which the motor 'bus is now being made the recipient—we might, perhaps, say the victim—is quite unnecessary from the ordinary business point of view. It can have but one explanation, that motor 'bus company promotions on a large scale are in contemplation, and have passed through the earliest stage—the stage in which the "puff preliminary" is diffused throughout the Press.

Well, we are getting nervous about all this. We have always been the champions of the motor 'bus, and we hope to see the day when the poor slaves of the horse-drawn omnibus will find other fields of activity more suited to their anatomy, and that then every 'bus in the Metropolis will be motor propelled. But we have seen indiscriminate, illicit, and unprincipled company pro-

motion make such havoc in the past with the whole motor car industry that we dread seeing it applied even to *one* thriving department of it. From the very first THE AUTOMOTOR JOURNAL has been opposed to the ill-considered promotions, which have done more than anything else to prejudice the automobile movement in the eyes of the public, and to interfere with the approach of its true prosperity. At the commencement of the movement the unprincipled operations of company promoters, who cared nothing for the industry, but merely desired to reap profit from their financial operations, did more to injure the automobile movement than even restrictive legislation or the ingrained conservatism of the British people. We alone opposed and exposed in the plainest possible language these unprincipled operations, at the time when the automobile industry first fell a victim to them, and the articles which we then wrote have frequently been quoted and referred to by the leaders of the movement in articles and speeches on the question. More recently, when there were rumours of a whole string of projects being in readiness to bleed the British investor by exploiting the public interest in the motor 'bus for the purpose of floating and financing wind-bag companies, we again adopted a hostile attitude to such promotions, and pointed out their dangers, with the result that for the moment they were put back to their pigeon holes to await a more "convenient season." Attempts are, we have reason to believe, being once again made in the same direction. Should these attempts succeed on at all a large scale, they will be certain to cripple the motor 'bus industry for a long period of time. Those companies which have already shown themselves capable of dealing with the situation are entitled to confidence. Should they desire further capital, the situation might be worthy of consideration, but we strongly advise the public against having anything to do with bubble 'bus promotions by new companies on a pretentious scale and questionable financial basis. If they do, they will not only lose their money, but interfere with developments which every Londoner has at heart—the substitution of the motor 'bus for the horse-drawn variety.

One Effect of the Olympia Exhibition.

WE have already indicated some of the general tendencies of this year's great automobile Exhibition, and we shall continue to deal with them in the present and subsequent issues. But there is one effect which this year's Show is producing (due probably to the larger number and increased importance of the exhibits), to a greater degree than has ever occurred before. We refer to the attention which it is attracting on the part of the general Press. Articles have been appearing about it in every type of newspaper. Many, indeed most of them, besides mainly referring to the chief features of the Exhibition, are doing what they have never done before, *i.e.*, recognising the extent to which this present Exhibition proves, not merely the great development of the British industry, not merely the general progress which has been made in motor car construction, but are recognising that there is now no question that road transport will, in the near future, be universally transferred from the shoulders of the horse to the cylinders of the automobile engine. Automobilists, of course, have been firmly convinced of this long enough ago, but now that the general Press and the general public are coming to recognise and adopt this attitude, the effects are sure to be almost incalculable. They are certain to profoundly affect legisla-

tion. As long as the future of the automobile movement was in doubt, as long as it was looked upon as quite an open question whether the horse would hold its own and perhaps even ultimately triumph over the automobile, reactionary cranks, like Sir Ralph Payne Gallwey and Lord Willoughby de Broke, were sure of a hearing, and no one could quite calculate what mischief they would do. With the change of attitude of the general Press, however, they will be regarded with much less patience. When the English public regard the triumph of a movement as certain they invariably bow down before it. The Press is now coming to regard the triumph of the automobile as certain. What the general Press says to-day, the public will think to-morrow, and the complete emancipation of the movement is nearly certain to be the ultimate result. This effect is a by-product of the Exhibition, but an important one all the same, and shows amongst other things how valuable great Exhibitions are even in ways not originally contemplated.

The Importance of the Car to the Doctor.

AS was mentioned by us, when we dealt with the various sources of evidence which the Joint Committee of the A.C.G.B.I. and the Motor Union collected for the assistance of the Royal Commission on the Motor Acts, very valuable information was supplied by members of the medical profession who have found the automobile such an assistance and such a boon in their practice. In spite of the public-spirited action of these doctors in assisting the Joint Committee, we are pleased to see that the matter is being taken up independently by the profession, and that the current number of the *Lancet* is publishing an account of the formation of a committee of medical motor car users, containing a long array of names of important members of the profession who wish to put their views before the Commission, and that the Royal Commission have signified their willingness to hear two witnesses—Mr. Lockwood and Dr. Bruce Porter—on behalf of the Medical Committee on the 29th instant. A large number of doctors who use cars, however, are anxious to have their views placed before the Commission, and the committee will be in a position to bring such views to the cognisance of the Royal Commission, probably by means of the two witnesses whom the Commission has elected to hear. Those having any points to bring forward should address them in writing to Dr. Bruce Porter, 6, Grosvenor Street, London, W.

That medical men, who have been very progressive in adopting the automobile for professional purposes, have decided on taking this independent action, is an extremely eloquent testimony to the value which they have found the motor car to possess for them. Its value is great, of course, in towns, but it is greater still in the country. In fact there is no doubt that the expense of upkeep of a light automobile is so much less than that of a horse and trap, one of which at least are essential for every country practitioner, as to neutralise the somewhat greater initial cost in an exceedingly short period of time. But that is a relatively small matter. The horse is a very tirable animal, and his effective radius is diminished by muddy roads and bad weather by about 50 per cent. Not so the car, while above all in cases of emergency the higher speed of the automobile has a value which many poor sufferers, and above all their anxious friends and relatives, have fully learned to appreciate. Kipling was not exaggerating in the least when he described the throb of the doctor's car as sounding to the ears of the anxious and waiting mother "like the beat of an angel's wing."

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The Right Spirit.

EVERYONE who takes an interest in the automobile movement will be pleased to learn that Lord Montagu of Beaulieu intends to continue editing and managing the *Car* and the other publications connected with it, which he started some years ago, and has brought to their present degree of popularity. A good many people surmised that Lord Montagu, though probably nothing short of a surgical operation would eradicate his enthusiasm for, and devotion to, automobilism as a pastime, would retire from active journalism on taking his seat in the House of Lords. This, however, is not Lord Montagu's disposition at all. As we pointed out some time ago, he is a hard and persistent worker, and his determination to keep his seat in the editorial saddle is what all who knew him well, anticipated. He makes reference to the subject in the last number of the *Car*, and in just the right sort of tone and spirit. "There is no need," he says, in effect, "at the present day that Peers should not do honest work. The idle drone notion is a thing of the past. In fact, most members of the Upper House are very hard-working people." It is, however, the means of benefiting automobilism which the editing and managing of an automobile journal gives him, that is evidently its chief attraction in Lord Montagu's eyes. It is pleasing, too, to find that he takes the proper and the highest view of journalism, whether general journalism, or journalism confined to some particular subject. "Surely no nobler ideal can be found," he observes, "than the endeavour to guide the minds of one's fellow-men in the channels which one honestly believes the right channels, and fighting for a cause or causes in which one believes."

A Testimonial to Automobile Journalism.

LOOKED at from another point of view, Lord Montagu's decision is a testimonial to the value and importance of automobile journalism at the present day which it would be hard to over-rate. That an active and strenuous, capable and hard-working man with a firm foot on the ladder of political advancement, and a seat in the House of Lords, recognises the opportunities for good which automobile journalism affords, that the chances for benefiting the movement which it provides are so valuable, and that the automobile movement itself is of such supreme importance that he is determined to continue to devote the greater part of his time to journals devoted to its advancement, is a striking commentary on the position which automobile journalism has attained. When the automobile movement first began in this country and when the first automobile journals came into being, if anyone had said that in less than ten years time a man of Lord Montagu's position would have used language of the kind we have quoted above in reference to automobile journalism as a field of usefulness and an important journalistic department, he would have been smiled good-humouredly out of Court. But the whirligig of time has brought its revenges. Automobilism touches human life and general progress at so many points that there is, after all, no other branch of journalism—journalism that is devoted to any *special* subject—which has so many opportunities (in addition to fighting its own particular battle) of promoting enlightenment generally and benefiting the cause of universal progress in such a variety of ways.

A New Hero of our Streets.

WE are glad to find that the enterprising journalist has at last discovered the man who drives the motor 'bus, and recognises that self-propelled locomotion in this form is producing a very creditable and really quite a high type of humanity. A representative of a sprightly morning daily contemporary, by the exercise of that magic of which the enterprising journalist is a master, was favoured with permission to sit on the seat beside the driver of a Vanguard 'bus (a privilege which is accorded to few), while that vehicle made its way from the savoury purlieus of the Elephant and Castle to the comparative rusticity of Cricklewood. He was enthusiastic about the capabilities of the driver, and has provided him with a most picturesque testimonial.

Shaving past within seven or eight inches of the off wheels of dilatory horsed omnibuses, flashing along a row of stationary electric tramway cars, spinning round carts, drays, and the like, the "Vanguard" man never for a moment hesitated or made a mistake. And that, too, despite a thick fog which gave everything a shadowy indefinite appearance. All other classes of vehicle were passed, except private motor cars. The horsed omnibuses looked foolish as they blundered stolidly along. But there was no suggestion of risk in this speedy, agreeable method of locomotion. Keen, intelligent watchfulness was depicted on the "Vanguard" man's face as it peered steadfastly through the fog. Not for a moment during the nine-mile journey did he turn his head.

It is a true picture, and we are glad it has been given currency in a popular morning paper, for really, after all, few people recognise the high capacity, the unerring judgment, the Spartan control of temper, and not unfrequently the real courage which the motor 'bus driver of to-day has to call into exercise, not merely once or twice in the day, but a dozen times on every journey—a journey alone rendered possible by the extraordinary degree of perfection to which the manoeuvrability of such vehicles has been brought. We have all been accustomed from childhood up to look upon the locomotive driver, to whose judgment and care the lives of a large number of passengers are entrusted, as a good deal more than "half a hero"; but when all is said and done, his performances are nothing to those of a motor 'bus driver. The engine driver has not to *steer* his trainload of confiding passengers at all. He has simply to look out for signals. But the motor 'bus driver often, with his cargo of humanity, has to dodge in and out of traffic, and be not only his own engine driver but his own signal service as well. It is a strain, no doubt, but from all we can see it is developing a fine type of man, and one who will not take a back place when, if ever, the various types of manliness that different conditions of society have developed are adequately compared with one another.



ONE of those nervous old gentlemen who seem to think that more police persecution is a cure for everything, has been writing to the papers complaining how greatly he has been frightened by motor cars during the recent thick fogs. On one occasion he says "the traffic was disorganised and crossing the road dangerous . . . I saw several going *quite fast* and one nearly ran into me . . . Could not the police act in this matter?" Comment on this sort of thing is really needless, for doubtless an elderly gentleman of this kind, if one motor car had warned him of its approach by the use of its hooter, would have promptly jumped under the wheels of another.

THE OLYMPIA EXHIBITION.

ALL those who take any interest in these great automobile shows already know, either by personal experience or from the vast amount of matter that has been written on the subject, that the Fourth International Motor Exhibition, organised by the Society of Motor Manufacturers and Traders, is now in full swing at Olympia, and that it is fairly eclipsing everything of the kind that has been held hitherto. As an example of good organisation, it is all that could be desired, and, as a spectacle pure and simple, it is extremely impressive. The vast building is quite as crowded, if not more so, with exhibits and spectators, than it was last February, in spite of the great improvements and extensions made to the annexe. It has during the week, up to the time of writing, been thronged daily with an enthusiastic gathering, the great majority evidently intent upon seeing as much as possible in the comparatively short time available, and bent upon securing delivery by booking the particular cars that take their fancy well in advance.

Most of the manufacturers of pleasure vehicles are to be found in the lofty main hall, with the heavy commercial vehicles arranged at the far end, while the motor-boats, skirted around by the stalls of carriage-builders, and of those firms whose cars have been crowded out of the larger building, form a most attractive display in the less lofty annexe; in the gallery are the great tyre companies, and, close to them, the

numerous well-known firms supplying accessories of all and every kind. Very brilliant and gay has every part been made to look, and many are the artistic or ingenious devices by which the attention of the visitor is attracted to this or to that stall. Most of the stands and signs have evidently cost their owners a considerable amount of thought, as well as money, and the net result is unquestionably a huge success.

To mention but a few of the specially striking erections in the main building, the stalls of the Argyll Company and of the New Arrol-Johnston Company, as also the hanging signs of the White Steam Car firm and the Du Cros Mercedes Company are particularly prominent, as is moreover the large brass "Napier" nameplate above the stall of S. F. Edge and Co. Supported upon pillars, the Argyll Company have a large model representing the frontage of their enormous new works at

Alexandria, while equally applicable to its owners, and therefore suggestive to motorists, is the extremely artistic stall of the Arrol-Johnston Company (designed by Mr. Alec W. Kirk), with its raised central shrine containing the firm's Tourist Trophy winning car.

On entering the annexe, the first sight to meet one's eye is Napier Major towering up above all the other exhibits, and forming a very popular "side show" in itself for those who care to walk upon the deck. Several other well-known motor boats are also there, including De Dietrich II. and the two Panhard boats. Panhard II., by the way, floats in water in a large tank, and the other two boats just mentioned are shown by Messrs. Jarrott and Letts, and by Messrs. J. E. Hutton, respectively. Near by, in striking contrast, are one of the powerful marine gas engines built by the Thornycroft Company, and the cleverly arranged, old-fashioned "court house" where

the "judges" are supposed to "decide." Even the much-despised gallery has far more interest than many an entire exhibition of the past has possessed for the buying public, the result being that it receives its full meed of attention from the visitors, and is, in fact, at times almost uncomfortably crowded. The stall-holders have succeeded in making an excellent show, in spite of the somewhat restricted space at the disposal of each, and many of the stands are exceptionally well arranged and beautifully decorated, as, for instance, those on

AT OLYMPIA.—His Majesty the King's new Car—a handsomely appointed Daimler fitted with every improvement which has lately been introduced either in chassis or carriage construction. Naturally enough this is one of the sights of the Show.

which Messrs. Melhuish and Co. display hundreds of useful tools and Messrs. Godin show off their special lamps.

On these occasions there are perhaps fewer exhibits having an historic interest than has hitherto been the case, and except for the Arrol-Johnston Tourist Trophy winner and the Rolls Royce second place holder in that event, Lancia's famous 120-h.p. Fiat racer was about the only example. The new car built by the Daimler Company for H.M. the King, should, however, also be included in this category of famous vehicles. It is but natural, in view of the magnificent examples of motor car design and construction—ready for those who are anxious to buy cars for their own use next year—that comparatively little space can be spared nowadays for even the most interesting reminiscences of past triumphs.

To the motoring public, and even to many of those

...ams Hewitt Company, and including, on the one side, such omnibuses as the Wolseley, the Clarkson, Straker-Squire, Simms, Arrol-Maudslay, and Dennis, to say nothing of others, the entire field for self-propelled vehicles well covered. They include, moreover, those new makers, as well as numerous entirely new models now introduced for the first time by firms whose names are already quite familiar.

Continental Competition.

From the Continent, however, there is also a truly representative showing, and the vehicles from France, Germany, Italy, Belgium, and Switzerland are worthy competitors in both the pleasure and commercial branches of the industry. With such powerful and excellent models to head the list of touring cars as the 70-h.p. Mercedes, the 50-h.p. 6-cylinder Panhard, the 50-h.p. De Dietrich—and others that come within the same category—with such universally-appreciated small cars as the 6-h.p. De Dion, with such motor 'buses as are sold by the Milnes-Daimler Company,

Messrs. Straker and MacConnell, Messrs. De Dion Bouton, the Motor Car Emporium and others, it will still require herculean efforts on the part of manufacturers in this country if they are to secure and keep any very great lead on such powerful rivals. Owing to the rapidly increasing demand for public service vehicles, there is an opportunity for even newly-established firms to obtain a sound footing in this branch—owing to the present inadequate supply. Nevertheless, it is certain that the "survival of the fittest" will be the principle upon which the success of any firm will depend.

AT OLYMPIA.—An Argyll Landaulette.—The chassis of this vehicle is the standard 14-16-h.p. model, which is also illustrated on this page.

whose business it is to keep closely in touch with the industry, the Exhibition this year cannot but be bewildering. The ever-increasing number of excellent types, the vast number of improvements that are in evidence, and the wonderful strides that have been made in rendering the pleasure car of to-day the essence of luxury, comfort and smartness must all tend to confuse the most conscientious and painstaking of visitors. The remarkable progress that has been made in all these directions undoubtedly has the result, however, of providing infinite satisfaction to those who visit the Show with a definite object in view, and a full knowledge of what it is that they desire to purchase.

It is this very multiplicity of interests and variety of models that renders it quite impossible for any report of the Show to be at the same time useful and thoroughly comprehensive. Every well-designed car—and in many cases some of its accessory parts alone—requires a considerable amount of space all to itself if even bare justice is to be done to it. Thus it is that we can only hope to give a general idea of some few exhibits in this article, reserving our columns as far as possible for dealing with the majority of those not already treated in our own much more satisfactory manner—in separate articles—now and in succeeding issues. This we hesitate the less to do because of the special tables given by us this week and last week, in which—even if not absolutely complete (through no fault of our own)—the leading characteristics of the pleasure cars and the commercial vehicles are set out, in a most compact form, convenient for ready reference.

British Progress.

Of truly British cars there is a splendid collection at Olympia, and, taking them all in all, no other country can to-day claim superiority. Ranging as they do from that wonderfully perfect piece of mechanism, the 60-h.p. six-cylinder Napier, to the remarkably well designed little car now built

AT OLYMPIA.—View from behind of the popular 14-16-h.p. Argyll Chassis, which is suitable either for a roomy side-entrance or landaulette body. An example of the latter type is illustrated at the top of this page.

AT OLYMPIA.—View of the Crawshay-Williams Chassis, which is now exhibited for the first time. It is a substantially built chassis of the chain-driven type, is fitted with a four-cylinder engine, multiple-disc clutch, and "Mercedes" type of gear, giving three speeds and a "reverse." Ball bearings are employed throughout the transmission, except on the chain sprockets, and the gear-box is carried on a special three-point suspension.

America as a Rival.

Although America has naturally not as yet made her extraordinary powers, of turning out good machinery at a low price, felt with much severity in the English automobile market—except in regard to low-powered low-priced vehicles, and very noticeably with steam cars—yet the few really well-known makers from across the Atlantic give every evidence at the Show of their great vitality. No stall makes a finer display of luxurious carriages than do the builders of the finest parab
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American Motor Car Company are deservedly second to none for "the man of very moderate means," with their Oldsmobiles and Cadillacs, respectively. Then, too, there are the Winton cars, which strongly appeal to many motorists, and are sure during the coming year to be met on our English roads much more frequently than hitherto, since—like the White steam cars—the latest models conform so much more closely to English requirements. Other cars from the U.S.A. include the "Maxwells."

6-Cylinder Cars and Town Carriages.

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AT OLYMPIA.—The new Adams Hewitt Chassis. Since last year, when the car was first exhibited, the chassis has been entirely re-designed, and it is now an extremely interesting example of a well-made British car based on American lines. It has a large slow-speed horizontal engine, two-speed epicyclic gear, and single chain drive to a live-rear-axle. The axles are connected together by long leaf springs which also form the main side members of the frame. Several very ingenious features have been embodied in the construction, however, which render the car quite an original design.

AT OLYMPIA.—One of the latest 10-12-h.p. Coventry Humber Cars. These popular vehicles have been a centre of attraction since the opening of the Exhibition. View of the engine and gear-box appears below.

way of comparatively light automobiles, *i.e.*, if we leave out of account the enormous amount of work that has been done in connection with motor omnibuses and lurries. At Olympia, cars having 6-cylinder engines are shown by at least ten firms, including those of Panhard, Gladiator, Berliet, and Clement—from France—as well as the Napier, Rolls-Royce, Ariel-Simplex, Belsize, Standard, and Orleans models.

Then, in the way of petrol cars designed to appeal to that class of user with whom electric carriages have hitherto been alone in favour, there are quite a number to be seen. The Electromobile Company themselves, who exhibit their latest electrics, were amongst the first to realise the demand for such cars, and it was for them, we believe, that the Napier landaulette (to which we refer more fully elsewhere) was originally produced. Much, of course, has been done by many of the best-known makers to render their standard types of chassis suitable for such work, but we refer chiefly now to the special cars in which the engine is hidden away beneath the floor or beneath the

seat, and not to those that retain the touring car type of bonnet. In the design of such "mock-electrics," firms—like the Wolseley Company—habitually employing horizontal engines, naturally had an advantage initially, but some such carriages—like the Napier—have vertical engines. Two of the most strikingly novel cars at the Show—both of all-British manufacture—are the Rolls-Royce, with its neat little 8-cylinder engine, and the N.E.C., with its 4-cylinder horizontal engine, both of which have been described by us within the last fortnight. Motor cabs present very much the same characteristics, in that they also are intended for work in town, and one of the neatest of these is exhibited by Messrs. Straker and MacConnell; it, unlike either the Dixi model or the Vauxhall "hansom"—both

of which are also on view—has a twin-cylinder vertical engine underneath the front seat.

Beautiful Carriage Bodies.

So artistic in design, luxuriously upholstered and beautifully finished, are many of the carriage bodies which are to be seen on the various stands, that it is almost invidious to mention only one or two in particular. If, however, any of our readers are visiting the Show before it closes, this Saturday, they may be advised to take a look at some of those on the Daimler, the White and the Dennis stalls, as also at the Duke of Westminster's car on Messrs. Lawton and Co's. stand. Considerable ingenuity has also been brought to bear on improvements in design from a utilitarian point of view, Messrs. Mulliner, for instance, having a landaulette with seating capacity inside for three passengers, the third seat being provided for by carrying the covered portion forward alongside the driver's seat; another case in point is the convertible body made by Messrs. W. and F. Thorn, but several other large carriage-builders have designs that are well worth attention.

The 10-12-h.p. Humber Car.—View of the Engine, showing the Crank-chamber which is divided vertically instead of horizontally, and the very large inspection doors which this form of construction permits. The commutator on the end of its inclined shaft is, it will be noticed, in a very accessible position.

The 10-12-h.p. Humber Car.—Interior view of the Gear-box, which has a single sliding member for giving three speeds and a "reverse." A direct drive is obtained on the top-speed, by means of jaw clutches, in the usual way. Ring-lubricated bearings are, it will be noticed, a feature of this gear-box.

AT OLYMPIA.—Italy's latest production—the Bianchi Car—which Messrs. Straker and MacConnell are introducing into this country. A fully illustrated article describing the features of this well-made vehicle appeared last week.

1906 Petrol Cars.

Most of the best petrol cars are now so well known to our readers that only very brief reference is called for, particularly as we have in many cases already recorded even the improvements that have been made for next year. As stated lately, but slight alteration has been made by the Daimler Company, except that the price of their famous cars has been much reduced; the Napier exhibit consists chiefly of the 6-cylinder cars of 60-h.p. and 40-h.p.; several new Siddeley models, which cannot but meet with a great demand, are being introduced by the Wolseley Company, in addition to the already popular horizontal-engined cars; all the Mercedes chassis, except the 25-h.p. model, have bearings on the crank-shaft and a direct drive the gear-box, as on the 70-h.p. car, described very fully a few weeks ago; the Ariel cars now have a change-speed-gear of the "Mercedes" type, in addition to various minor improvements; the new De Dietrich models are even better than those of last year, and the very simple engine now employed has been altogether redesigned; the new De Dion types include a more powerful 4-cylinder model than the 15-h.p. of this year;

Cars of Moderate Power.

A very important development is discernable in connection with cars of moderate power—that type of car, in fact, which is, to all intents and purposes, specified by the present Tourist Trophy rules. We refer to the appearance at Olympia of such new models as the 12-15-h.p. De Dietrich, the 14-22-h.p. Germain, the 12-16-h.p. Fiat and the 14-h.p. C.G.V. It is significant, and will, we feel sure, be welcomed by many motorists, for the tendency up to now has been for such first-class Continental firms as these to confine their attention to the construction of much more powerful

vehicles. It is, of course, a type of car that many British makers have adhered to, and there are, at Olympia; quite a large number having engines of a corresponding power. Most of the firms who took part in the Tourist Trophy race have stalls there, and consequently those wishing to purchase this useful kind of vehicle have a large variety from which to make a selection.

Notable amongst such well-known British models are the Thornycroft, the Argyll, the Arrol-Johnston, the Rolls-Royce, the Simms, the Swift, and the Humber, the last-mentioned make having been brought up to a remarkably high state of development during the past year or so. There are, too, cars of about the same power shown by the Maudslay, Dennis, Orleans, Speedwell, Standard, and Rover Companies. The Leader is another instance in point, though this little 4-cylinder car was not one that figured in the Isle of Man last September.

Somewhat more powerful cars, but still low-powered in comparison with their larger models, are also shown by Messrs. J. W. Brooke and Co., and the Burlington Carriage Company (16-20-h.p. Delaunay-Belleville).

Other New Touring Models.

In addition to those already mentioned as such, the entirely new cars shown by English makers include the two Legros and Knowles models, the chain-driven and

AT OLYMPIA.—A private motor cab. One of the most striking vehicles at the Exhibition, which is shown in the Annexe, by Messrs. Straker and MacConnell. Curved sliding doors are fitted to the body which is luxuriously upholstered and fitted with every convenience. Under the driver's seat is the twin-cylinder 14-h.p. engine; a Mercedes type of gear-box is fitted which provides three forward speeds and a "reverse," and the rear wheels are driven by side chains.

Light Cars.

Strictly speaking, the Adams-Hewitt should have been included in the preceding paragraph, for it has been improved out of all recognition during the past season, even though it still retains the leading characteristics of the American "run-about"; it is, however, essentially an instance in which no adequate idea can be conveyed in a few brief sentences, and is a car of which we hope to give a full description in an early issue.

Most of the other light cars—and there are many at Olympia—are already more or less familiar to every motorist, and, although each and all have been brought up to date in one way or another, they practically remain unaltered in all essentials. The 6-h.p. models of the Wolseley Company and of Messrs. De Dion Bouton continue to hold their premier place

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AT OLYMPIA.—The latest 12-h.p. De Dion Car fitted with twin-cylinder engine, high-tension magneto ignition, sliding-spur-wheel gear, and single-disc clutch.

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The 24-h.p. Albion Car.—Side view of the new chassis, showing pressed-steel frame and enclosed side-chains. In front of the engine is the Albion mechanical lubricator, A, which we have already described in detail. Some radical departures from orthodox practice have been introduced into this new model.

two chain-driven types of touring car having four-cylinder engines, Hele-Shaw clutches, and a "Mercedes" type of change-speed-mechanism; prior to the opening of the Show, it was impossible to include any full description of these vehicles, but we hope to do so shortly. Amongst other new cars shown for the first time are those exhibited by Messrs. Bell Brothers and the Vulcan Motor Manufacturing Company.

Of Continental construction, mention should also be made of the 1906 Minerva cars, made in two sizes now having live axles, and of the 20-h.p. Pilain exhibited by Mr. W. H. M. Burgess; the latter has an unusual type of transmission mechanism, which gives a direct-through-drive on the two highest speeds. From America, the chief radical novelties are the two-cylinder and four-cylinder Oldsmobiles, with their vertical engines.

AT OLYMPIA.—The De Dion Char-a-banc with "vis-a-vis" seats. This body is mounted on the same chassis as that used for double-decked omnibuses; it has a four-cylinder 24-h.p. engine, fitted with magneto ignition, a sliding spur-wheel type of gear-box, and the road wheels are mounted on a stationary axle and driven through spur gearing by transverse cardan shafts.

AT OLYMPIA.—An example of elaborate suspension on a new C.G.V. chassis, showing the "C" springs and transverse spring which support the frame at the rear. Specially constructed for Continental use, this model has the steering-wheel on the left and the control-levers in the centre.

cellence of design, and, of course, the Cadillacs and the Oldsmobile "run-abouts" have secured a most enviable reputation for those requiring really serviceable vehicles at a remarkably low figure.

Steam Cars.

Even apart from the White steam cars, the excellent features of which become more and more fully appreciated by motorists each year, the prospects of steam in competition with internal combustion engines for touring vehicles, have a somewhat brighter appearance at the present Show. There is not only the Miesse model, which has undergone but little change since it was last referred to by us, but the Speedwell Company are exhibiting an entirely new Serpollet chassis, on which many radical alterations have been introduced. The engine is, for instance, fixed beneath the bonnet in front, and is now coupled up by a long propeller-shaft with a rear axle of the "live" type. A small steam donkey-pump, quite independent of the engine, operates the fuel and water feed-pumps, so that the system as a whole may be said to constitute a complete departure from that of the earlier Serpollet cars.

The War Office ambulance car, which has been built experimentally for the Royal Army Medical Corps by Messrs. Straker and Squire, and which is on the firm's stand, looks a businesslike machine for the purpose for which it is intended. The internal arrangements are of a very practical nature, there being room on one side for two patients at full length, one

ng arranged over the other. The top one is so hat the whole berth can be brought down ally to the floor level and the patient then n the bed, the berth and patient then being raised back into place, thus making room for a second patient underneath. On the other side seated patients are provided for, to the number of about eight, in addition to the nurse, whilst, underneath, room is provided for spare stretchers. This vehicle, which is shod with Sirdar tyres, is to be tried in connection with the new Army scheme for Central Hospitals which provides for bringing up patients from various outlying military depôts to one central establishment.

Tyres.

One of the most important sections of the whole exhibition, and by no means the least interesting either—even to the casual spectator—is that uninterrupted line of stalls in the gallery where the great tyre companies display the products of their craft.

So specialised and technical is the process of tyre manufacture, and so little is it possible for evidence of improvement to be visible on the mere observation of the finished articles, that a very great deal has to be taken on trust by the purchasing public. There is one great safeguard, however, in the established reputation of the best-known firms, and the motorist is indeed well looked after by them in their constant endeavour to improve, year by year, the wearing qualities of their goods. Dunlop tyres have, as usual, a prominence at the Show which is worthy of their famous name, and a most valuable stock of tyres, including their full range of sizes, is on view. Always endeavouring to effect any improvement in the "accessories" of a tyre, they have this year introduced a new security bolt, which is claimed to be immune from any tendency to "cockle" under adverse usage or conditions. It is a business-like improvement, and consists of lining the canvas tabs with a foundation of

AT OLYMPIA.—A Mercedes Brougham.—One of the latest 35-h.p. models exhibited by Messrs. J. E. Hutton.

BUYERS' GUIDE TO THE OLYMPIA EXHIBITION, 1905-6.

Classified Table of the Exhibits in the Industrial Vehicle Section.

LEADING CHARACTERISTICS.

CONSTRUCTIONAL DETAILS.

Stall No.	Description.	Maximum Load.	Capacity (cu. ft.) or Seats.	Platform Area.	Drive.	Live Axle.	Price.	Type.	ENGINE.	TRANSMISSION.	WHEELS, TYRES, AND DIMENSIONS.	Type.	WEIGHT.	Stall No.									
h.p.	Complete with Body.	Chassis.	Complete.	Number of Cyls.	Bore.	Stroke.	Normal Speed.	Clutch.	Change Speed.	Number of Speeds.	Wheels.	Wheel Base.	Track.	Overall Length.	Extreme Width.	Type.	Size.	Chassis.	Complete.				
tons	sq. ft.	sa	cc	sa	cc	sa	cc	sa	cc	sa	cc	sa	cc	sa	cc	sa	cc	tons	sq. ft.				
Petrol Vehicles for loads exceeding 30 cwt.	113	24-40 F.I.A.T. 'Bus	4	36	CC	sa	650	V	4	125	150	1000	md	S	4	W 10	10 3	5 5	20 0	R	39 x 4 1/2	2 1/2	
160	24-22 Mors 'Bus	—	—	—	CC	sa	780	V	4	110	150	1000	md	S	4	W 14	4 4	5 3	22 0	R	39 x 3 1/2	2 1/2	
56	24 Thornycroft 'Bus	—	—	—	CC	sa	775	V	4	4 1/2	5	900	md	S	4	W 13	4 4	6 0	17 10	7 6	R	40 x 4 1/2	2 1/2
156	30-40 Maudslay 'Bus	—	—	—	CC	sa	775	V	4	4 1/2	5	900	md	S	4	W 12	0 5	6 21	6 7	1 1/2	R	38 x 5 1/2	3 1/2
35	24-30 New Arrol-Johnston 'Bus	—	—	—	CC	sa	750	V	4	4 1/2	5 1/2	950	md	S	4	W 12	0 5	4 20	6 6	—	R	40 x 4 1/2	2
159	24 Scott-Stirling 'Bus	—	—	—	CC	sa	850	V	4	4 1/2	5 1/2	750	ex	S	4	W 10	6 6	—	—	—	R	30 x 4 1/2	3
96	30 Straker-Squire Lorry	—	—	—	CC	sa	730	V	4	120	130	900	lc	S	4	W 13	6 6	6 0	20 0	7 0	S	39	3 1/2
94	24-28 Dennis 'Bus	—	—	—	CC	sa	700	V	4	4 1/2	5 1/2	900	lc	S	4	W 11	6 6	5 19	0 6	4 1/2	R	36 x 4 1/2	3
166	30-40 Straker-McConnell 'Bus	—	—	—	CC	sa	850	V	4	120	140	1200	lc	S	4	W 13	10 4	11 22	0 6	4 1/2	R	950 x 100	3 1/2
95	18-22 James and Browne 'Bus	—	—	—	CC	sa	660	H	4	4	6	600	mc	S	4	W 9	10 6	2 18	3 7	2	R	36 x 5 1/2	2 1/2
53	24 Brillie 'Bus	—	—	—	CC	sa	650	V	4	100	120	1200	—	S	4	W 9	2 15	6 0	7 0	0	R	—	2 1/2
54	24 Straker-Squire 'Bus	—	—	—	CC	sa	650	V	4	105	130	900	lc	S	4	W 10	6 6	6 0	20 4	7 2	R	42 x 4 1/2	3
74	20 Wolseley 'Bus	—	—	—	CC	sa	640	H	2	6	7	600	lc	S	4	W 14	0 5	10 18	11 7	5 1/2	R	40 x 4 1/2	4
75	24-30 De Dion Charabanc	—	—	—	CC	sa	635	V	4	104	130	1350	sd	S	4	W 13	0 5	10 18	11 7	5 1/2	R	40 x 4 1/2	4
156	28-35 Simms-Webeck 'Bus	—	—	—	CC	sa	625	V	4	120	135	800	md	S	4	W 11	6 6	5 19	0 7	6	S	—	4 1/2
161	27 Maudslay Lorry	—	—	—	CC	sa	625	V	3	5	5	750	lc	S	4	W 10	10 4	8 13	11 5	8	R	34 x 3 1/2	1 1/2
159	24 Thornycroft Van	—	—	—	CC	sa	625	V	4	105	140	1000	lc	S	3	W 13	0 6	4	—	—	R	36 x 2 1/2	2 1/2
166	14 Scott-Stirling 'Bus	—	—	—	CC	sa	580	V	2	4 1/2	5 1/2	750	ex	S	3	W 9	0 5	4 17	6 6	9	R	32 x 5	1 1/2
89	30 Iden Lorry	—	—	—	CC	sa	560	V	2	111	130	800	mc	S	3	W 11	0 5	4 17	6 6	9	R	36 x 2 1/2	2 1/2
173	24 Straker-McConnell 'Bus	—	—	—	CC	sa	—	V	4	120	120	800	lc	S	4	W 12	6 5	3 22	4 6	9	R	950 x 100	1
165	De Dietrich 'Bus	—	—	—	CC	sa	—	V	4	110	140	800	lc	S	4	W 13	0 5	1 22	6 6	9	R	40 x 4 1/2	2 1/2
165	25 Milnes-Daimler 'Bus	—	—	—	CC	sa	—	V	4	100	135	—	lc	S	4	W 14	9 6	6 20	0 7	0	R	36 x 4 1/2	4 1/2
165	24-30 Beaufort 'Bus	—	—	—	CC	sa	—	V	4	100	135	—	lc	S	3	W 12	0 6	0 20	0 7	0	R	30 x 4 1/2	4 1/2
165	30 "British" 'Bus	—	—	—	CC	sa	—	V	4	5	6	800	lc	S	3	W 12	0 6	0 17	6 7	0	R	36 x 4 1/2	4 1/2
165	30 "British" 'Bus	—	—	—	CC	sa	—	V	4	4	5	800	lc	S	3	W 12	0 6	0 17	6 7	0	R	36 x 4 1/2	4 1/2
Petrol Vehicles for loads net exceeding 30 cwt.	167	24 Iris Van	—	—	CC	sa	600	V	4	4 1/2	4 1/2	800	lc	S	4	W 9	0 2	4 6	14 0	6 0	P	915 x 105	21
164	14-19 Mors Van	—	—	—	CC	sa	580	V	4	90	125	1000	mc	S	4	W 9	2 4	4 6	12 6	5 6	P	880 x 135	14
95	12 De Dion Lorry	—	—	—	CC	sa	460	V	2	100	110	1350	sd	S	3	W 8	3 4	4 8	14 6	5 10	R	36 x 6	25
94	14-16 James and Browne Van	—	—	—	CC	sa	445	V	4	3 1/2	4 1/2	800	mc	S	4	W 8	4 4	4 12	0 5	6	R	34 x 3 1/2	34
94	14 Dennis Van	—	—	—	CC	sa	400	V	2	105	140	900	lc	S	4	W 10	0 4	3 13	6 5	0	R	32 x 3 1/2	15 1/2
35	12-14 Singer Van	—	—	—	CC	sa	388	H	2	4	6	800	lc	S	4	W 7	0 4	3 10	6 5	0	P	32 x 3 1/2	14
75	12-15 New Arrol-Johnston Van	—	—	—	CC	sa	350	V	2	4 1/2	6 1/2	800	lc	S	4	W 10	6 4	10 12	2 5	5	R	—	30
173	12-14 Simms-Webeck Van	—	—	—	CC	sa	350	V	2	110	110	800	lc	S	4	W 9	2 4	4 6	16 0	5 9	R	30 x 3 1/2	35
24	12-14 Beaufort Lorry	—	—	—	CC	sa	340	V	2	100	135	1000	mc	S	3	W 9	2 4	4 6	16 0	5 7	R	875 x 3	16
76	12 Crawshaw-Williams Van	—	—	—	CC	sa	330	V	2	100	120	900	lc	S	3	W 7	10 4	6 12	6 6	0	R	34	18
86	16 Lacre Van	—	—	—	CC	sa	325	V	2	95	130	1200	lc	S	3	W 7	3 4	8 10	6 5	6	R	30 x 3	24
15	12 Thames Eng. Co. Van	—	—	—	CC	sa	325	V	2	95	140	1100	lc	S	3	W 9	6 4	4 8	13 0	5 6	R	3 x 3 1/2	25
95	12 Metropolitan Mail Van	—	—	—	CC	sa	295	V	2	95	140	1100	lc	S	3	W 9	0 4	4 13	13 3	5 6	R	—	30
166	10-12 Argyll Van	—	—	—	CC	sa	275	H	2	4	6	600	mc	S	4	W 8	5 4	4 11	0 2	5 2 1/2	R	34 x 3 1/2	17
74	9 James and Browne Van	—	—	—	CC	sa	251	V	2	100	120	1200	lc	S	4	W 7	8 9	3 10 1/2	11 4	5	R	810	14 1/2
46	14-16 Straker-McConnell Van	—	—	—	CC	sa	226	V	1	106	120	1350	sd	S	3	W 8	9 3	10 11	10 4	11	R	34	15
66	8 De Dion Van	—	—	—	CC	sa	226	V	2	4	4 1/2	800	lc	S	3	W 6	2 4	3 9	6 5	0	R	30 x 3 1/2	12 1/2
54	10 Alldays Van	—	—	—	CC	sa	190	H	2	3 1/2	4 1/2	1250	lc	S	3	W 6	3 3	3 8	9 6	4	R	28 x 3 1/2	11
54	6 Wolseley Van	—	—	—	CC	sa	160	H	1	4 1/2	5	800	lc	S	3	W 5	6 3	3 8	9 6	4	R	700 x 85	15

STEAM VEHICLES.

LEADING CHARACTERISTICS.										CONSTRUCTIONAL DETAILS.															
Stall No.	Description.	Maximum Load.	Capacity (cu. ft.) or seats.	Platform Area.	Drive.	Fuel.	Price.		Type.	ENGINE.			BOILER.		Wheels.	Wheel Base.	Track.	Overall Length.	Extreme Width.	DRIVING TYRES.		WEIGHT.		Stall No.	
							Chassis.	Complete with Standard Body.		Simple or Compound.	Cyls.	Bore.	Stroke.	Type.						Heating Surface.	ft. in.	ft. in.	ft. in.		tons	Complete.
93	h.p. Chelmsford 'Bus	...	34	sq. ft.	CC	oil	£625	£600	H	S	2	4	4	flash	140	W	11 0	5 9	17 4	7 4	R	40 x 4 1	3	4	93
96	40 Straker Wagon ...	5	—	72	CC	oil	£570	£600	H	C	2	4 and 7	4	water	48	S	10 2	5 2	18 6	6 6	S	42 x 10 4 1	4 1	5	96
161	40 Straker Wagon ...	5	—	70	CC	oil	520	550	H	C	2	4 and 7	7	loco.	58	S	12 8	5 2	20 0	6 6	S	42 x 10 4 1	4 1	5	96
161	25-30 Thames Eng. Co. Lorry	4	—	85	CC	oil	—	550	H	C	2	3 1/2 and 6 1/2	6	loco.	50	S	10 3	5 10	19 6	6 9	S	38 x 9 1/2	3 1/2	4	161
162	30 Jesse Ellis Wagon	8	—	58	CC	oil	—	550	H	C	2	4 and 8	6	fire	65	W	10 5	6 6	16 8	6 8	W	42 x 10 4 1	4 1	5	162
163	"Hay" Lorry	...	—	130	R	oil	—	425	H	S	1	10	12	fire	—	S	11 6	6 3	23 6	7 6	S	42 x 11	—	—	163

Leading Characteristics—

Drive.—S = Shaft; CC = Side Chains; C = Single Chain; G = Gear; R = Ratchet.

Live-Axle.—la = Live-axle; sa = Stationary-axle.

Fuel.—Co = Coal or Coke; Pa = Paraffin.

Engine—

Type.—H = Horizontal; V = Vertical.

Simple or Compound.—C = Compound; S = Simple.

Boiler—

Type.—Loco = Locomotive type; Fire = Fire-tube type;

Water = Water-tube type.

Transmission—

Clutch.—lc = Leather Faced Cone; mc = Metal Cone;

md = Multiple Disc; sd = Single Disc; ex = Expanding.

Change Speed Gear.—S = Sliding Spur; U = Unusual.

Wheels—

W = Wood; S = Steel.

Tyres—

S = Steel; R = Solid Rubber; P = Pneumatic; l = twin tyres.

rubber, which stiffens them sufficiently to make them very durable and yet not so much so that they do not easily adapt themselves, as before, to their positions when in place. On the Continent few tyres rival the famous Michelin pneumatic, which is manufactured at Clermont Ferrand; and since it has been introduced into England its popularity has been assured by the large number of motorists who immediately availed themselves of the opportunity to use this make. At Olympia these tyres were greatly in evidence, as were those of the well-known Continental Company, whose repeated successes in races—including the memorable first Tourist Trophy—has won for them a fame as widespread as it is well deserved. One of the best known of our English tyres is the Collier, which is peculiar for its construction and its method of fastening, both rendering it extremely suitable for that class of work for which, especially, it has made such a good name. An interesting feature of the Collier Company's stand is the set of tyres taken from one of the Daimler cars used by His Majesty the King. Another tyre which is very interesting in its construction is the Palmer, but its peculiarities are, of course, already well known to our readers. One of the most comprehensive exhibits is that of the North British Rubber Company, who not only show the Clincher pneumatic tyres, but also solid tyres, and the Ducas hollow tyre, which latter we have described in the past. Another firm showing both solids and pneumatics is Messrs. Moseley, who have two lady operators demonstrating the facility of mounting and removing their pneumatics. As usual, the Sirdar Rubber Company make an imposing display of their deservedly famous "Buffer" tyres, which are now being so largely used on public service vehicles throughout the Kingdom. There are few more important items to motor bus companies than the question of tyres, and there are few rubber firms who have laid themselves out more thoroughly to meet the ever-increasing demand on their supply than the Sirdar Rubber Company, who had, of course, established long before a reputation for their goods on pleasure vehicles. Another famous firm of solid rubber tyre manufacturers is the Shrewsbury and Challiner Tyre Company, who exhibit their well-known "World," "Giant," and "Bull" tyres for use on omnibuses, vans, and luries. Messrs. Connolly show the celebrated Goodrich tyres, which are as well-known in America as in this country, and our readers are already familiar with the very strong fastening which forms the peculiar feature of these tyres. Although not actually exhibiting tyres, no reference to this section would be complete without mention of the vulcanisers shown by Harvey Frost and Co. Tyre repair is of such vital importance to motorists that these devices make a direct appeal to all who are interested in economising their tyre upkeep. Readers of our article on modern tyre repair will be conversant with the process of using small vulcanisers, particularly the portable plant which is a speciality of this firm. Non-skids there are in plenty, but those of well-known makes, such as the Samson (Capt. Masui) and the Parsons, are so well-known that they need no comment. It is the same as with the tyres themselves, their popularity is the surest indication of their quality.

AMONGST the earliest visitors to the Olympia Show last week were H.R.H. the Princess Louise, Duchess of Argyll, the Duke of Argyll, K.G., the Dowager Duchess of Sutherland, and Lord Suffield.

The Argyll Motors, Limited's stand at Olympia is a novelty in design, a large model of the new works frontage at Alexandria being faithfully reproduced. This model of the works, which is seen in our photograph of the stand, is 22 feet in length, giving a scale of about half an inch to the foot. The effect is distinctly striking.

Olympia.—The Inaugural Luncheon.—No formal opening took place this year in connection with the Olympia Show, the inaugural luncheon being the only outward and visible sign of any ceremony on the first day. This was a crowded function, practically not a seat in the huge dining-room at Olympia being vacant.

Mr. Sidney Straker, the President of the Society of Motor Manufacturers and Traders, occupied the chair, whilst the Hon. Arthur Stanley, Chairman of the A.C.G.B.I and the Motor Union, was the chief speaker.

Mr. Stanley, in proposing the toast of the day—"The Society's Exhibition"—was gratified to think that it was not a very difficult toast to deal with, as the splendid Show spoke for itself. He referred to automobile times of ten years ago as pre-historic and compared them with the magnitude of the industry which has grown up in the interim. He said that not only were British manufacturers holding their own, after having caught up foreign makers, but that they were taking up their position as the first in the motor car industry. He was somewhat diffident, and said he was afraid he would tread on the sensitive corns of the local authorities—in referring to the subject of "roads." Reforms, he thought, must come gradually, and it would not be wise to take away at once powers of local authorities for local roads, but he hoped, as regards main roads, that these would be placed in the hands of a central body and thereby efficient and economical administration secured. This, he believed, could be done without putting a single penny extra tax upon anybody, by utilising the fines which were inflicted upon automobilists, the taxes on motors, &c., and adding them to the present grants for road up-keep. Together these would more than suffice to provide the funds for the maintenance of the main roads. In time there would evolve a series of

grand, broad, and dustless roads, stretching out in every direction throughout the country with London as a centre. Difficult as the problem was, he was convinced that it would be solved ultimately by means of the automobile.

Mr. Sidney Straker, in replying to the toast, was able to give some interesting facts and figures which went far to confirm the strongly-expressed views of the Hon. Arthur Stanley upon the enormous advances which were being made in the home industry.

The Austin Car.—The important announcement is made by Mr. H. Austin that Mr. Harvey Du Cros, Jun., has been appointed the sole selling agent for this car, all business relating to which will be conducted from 127-130, Long Acre, London, W.C. Models will comprise a 15-20-h.p. 4-cylinder car, gear driven, and a 25-30-h.p. 4-cylinder car, chain driven, delivery of which will be given in January. Mr. Austin is and has been at the Ariel Motor Stand, No. 41, Olympia, during Show week, where he has been the recipient of many congratulations from his numerous friends upon the new enterprise upon which he has embarked.

In the advertisement last week of the Austin Motor Company, of Longbridge Works, Northfield, Birmingham, in a few of the copies printed the figure 1 was, unfortunately, "dropped" in the line which gave the powers of the touring cars for 1906 which Mr. Austin will be building under the title of "Austin" cars. This "dropped" figure made the first car read as a 5-20-h.p. live-axle car. Of course, this should have been a 15-20-h.p. live-axle car.

THE special fête to be held in Paris during the Automobile Salon next month, in commemoration of the Tenth Anniversary of the foundation of the A.C. de France, is announced to take place on December 12th.

AT OLYMPIA.—North-Eastern Railway Parcels Express.—A new delivery van supplied by the Motor Car Emporium, Ltd.

SOME LEADING CARS AT OLYMPIA.

(Continued.)

THE NAPIER PETROL LANDAULETTE.

PROBABLY no automobile is so generally admired for its graceful lines—even by those who are otherwise given to see no beauty in the most handsome of orthodox motor cars—as the electric landaulette, with the swan-like curvature of its dash, and it is little wonder that a demand among those who use their cars largely in town should have sprung up for petrol driven vehicles of similar design. To a firm such as Messrs. S. F. Edge this naturally made a direct appeal, and the designing of a chassis to meet these requirements, without sacrificing the characteristic features which have made the Napier touring cars famous, became at once a problem of urgent importance. Popular supposition accredits the vertical engine as an unsuitable type for any other position but under a bonnet, and yet the Napier Company have not only been successful in making room for one of their four-cylinder models beneath the body, but they have maintained its

longitudinal position in the frame at the same time. One other difficulty to be overcome was the interference of the side chains with a perfectly free entrance to the carriage with such a short wheel base, but this has been ingeniously surmounted by arranging them inside the frame. In respect of the engine, the clutch and the gearbox, the chassis is virtually the standard 18-h.p. model and it carries with it, therefore, an already fully-established reputation. It will be remembered that the first model was exhibited by the Electromobile Company—who took over the sale of these cars from the very first—at the last Olympia Show.

The Napier Landaulette. View of the complete car showing the curved dash and the direct entrance to the carriage which is entirely unobstructed by the side chains.

All the peculiarities in the arrangement of this interesting chassis are illustrated by the photographs which we have taken specially for the purpose, and we also reproduce a photograph of the completed vehicle, which shows very clearly the neat appearance of the finished design. Immediately below the driver's seat is the engine, to which access is obtained through hinged

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Fig. 2.—The Napier Landaulette. Side view of the Engine showing the inclined Push-rods, A¹, which operate the Inlet Valves, and the Pressure valve, D¹, for the lubricating Oil-tank, D.

The Engine.

In order to obtain the necessary height for the engine without interfering with the bodywork, it has, of course, been necessary to build it on a somewhat lower level than usual, for which reason it is carried by an underframe supported on transverse members, and the longitudinal members of this underframe are continued to meet the side members of the main-frame in order to thus afford additional rigidity to the construction.

Cast in pairs, the cylinders have all their valves on one side, but the inlet valves are placed above the exhaust valves, and they are mechanically operated by inclined push-rods and rock-levers. These push-rods, A¹, are prominent in Fig. 2, and the same view shows the method of carrying the rock-levers on the inlet-valve cages, A, themselves, so that by removing the large central nuts, A², and slacking back those securing the induction-pipe, the cages—which are also cast in pairs—can be bodily removed with their valves for the purpose of grinding in or inspection. Slotted flanges are employed for the induction-pipe connections, which are visible in Fig. 3, so the nuts for these do not have to be entirely removed in order to take away the cages, A. Coiled torsion springs, A³, are used for controlling the return of the rock-levers and push-rods, but these are, of course, quite independent of the valve springs proper, which are contained inside the cages, A.

On the opposite side of the engine is the carburettor, B, which is fed by gravity from a petrol tank on the dash. Automatic governing of the engine is provided by means of a centrifugal governor, which is interconnected with the throttle-valve, and a Napier hydraulic air regulator, B¹, controls the richness of the mixture for variations of speed. A branched induction-pipe passes from the carburettor to the inlet-valve cages, which, it will be noticed, form particularly neat and accessible fittings.

Mounted on a bracket close to the engine is the multiple "commutator," C, for distributing the battery current to each of the four separate induction coils in turn. From these coils neatly arranged high-tension wires, C¹, are led to the ignition plugs below the inlet-valves. Friction-driven by the fly-wheel is a centrifugal circulating pump which passes the cooling water through each jacket in turn. Immediately below the front of the frame is the radiator, which is of the coiled finned-tube type, while behind, above the bent rear axle, is a water tank. All the water-pipe joints on the jackets are, it will be noticed, in accessible positions above the cylinders. Lubricating oil is carried in a tank, D, situated just behind the engine, and is fed from this by exhaust-pressure to the drip-feed lubricator on the dash. Owing to the unusual position of the engine, it has not been possible to use the orthodox fitting for the starting-handle, and it has even been necessary to intro-

Fig. 3.—The Napier Landaulette. View of the Engine from the left, showing the "Commutator," C, and the hydraulic Regulator, B¹, which controls the warm air supply to the Carburettor.

duce sprockets and a chain in order to overcome the difficulty. The starting-handle is, however, in the usual position in front, but in order to engage it with the starting-gear it is necessary to push a small rod similar to that often provided to relieve the compression when starting powerful engines on large cars.

(To be continued.)

Quevedo Redivivus.—Another Quevedo has arisen in Spain, who has, it is alleged, tried on the sea near Bilbao, and steered by wireless telegraphy from the shore, a motor launch. We are always hearing of this departure, but somehow these wirelessly steered boats never get any forrarder, and, with horrible persistence, they always perform their evolutions in foreign parts.

THE 1906 WINTON CARS.

ALTHOUGH so successful, both here and in America, with their well-known and popular horizontal engines, the Winton Company introduced, at the last Olympia Show, it will be remembered, a new type of car with vertical engine and propeller shaft drive. This is perhaps the most radical departure which any firm can make, and just at first such a venture may fairly be regarded in the nature of an

This latter model has, of course, already been very fully described by us in the past*, and it remains, in all important respects, the same to-day. One important detail to be remembered, however, is that it is now supplied complete, with interchangeable bodies—one a roomy detachable tonneau, and the other a brougham to seat four—which are readily interchangeable. Except as regards dimensions, the vertical models are alike, so the illustrations and description which we give of the 25 h.p. chassis applies in general to the smaller size also.

In adopting the vertical type of engine, the Winton Company have not sacrificed any of the well-known features which are so closely associated with their name; the pneumatic control of the atmospheric inlet-valves and the "fool-proof" change-speed-gear are again the two most prominent features of the system, while there are many special details of construction—such as the vertical division of the crank-chamber, the compound springs, and the gear-driven fan—which make this car unique, even although belonging to a thoroughly orthodox type. Only two forward speeds are available, but the four-cylinder engine is of ample power, flexible, and is easily controlled, so that in practice it is seldom necessary to use anything but the top-gear. In the vertical types, a propeller-shaft is employed to drive the live-rear-axle.

*See THE AUTOMOTOR JOURNAL, October-November, 1904.

Fig. 1.—The 25-h.p. Winton Car. Front view of the chassis, showing the radiator and the manganese bronze front axle.

experiment. With a firm such as the Winton Company, however, success is too well assured to leave any grave element of doubt, and it comes as no surprise that they are making a great feature of the vertical engine this year. Some slight modifications have not unnaturally taken place in the design, while the sizes of the various models have also been readjusted to more nearly suit the requirements of the majority; thus the smallest model has been modified for the English market, but still has a 16-h.p. vertical engine, the 40-50-h.p. car is no longer to be built, so that the 25-h.p. chassis—also fitted with a vertical engine—is now the most powerful of all. Between these is the old standard 20-h.p. car, with the horizontal engine, which has done such yeoman service in the past, and is, in fact, largely responsible for the Winton Company's fame.

Fig. 2.—The 25-h.p. Winton Car. View of the engine, showing the "pneumatic control" Cylinders, A, over the inlet valves, and the Pump, B, which feeds them with air. Also prominent in the view is the Carburettor, C, the Commutator, E, and the Force Pump, D, for the fuel and oil feeds.

Fig. 3.—The 25-h.p. Winton Car. View of the Engine, showing the very large inspection doors in the crank-chamber, which is constructed with a vertical joint so that the entire side can be bodily removed. A gear-driven fan is placed behind the radiator, and the Disc-Clutch, F, which couples the blades to the spindle can be seen in this view.

The Engine.

ONE of the most noticeable features about the engine is that all fittings are mounted on one side only of the crank-chamber, this being done in order to leave the other side entirely unobstructed. It is from this latter side of the engine—which is illustrated in Fig. 3—that access is obtained to the crank-chamber, and not only are large, and readily removable, inspection-covers provided, but the crank-chamber itself is constructed with a central vertical joint, so that the whole of one side can be bodily removed. Independent caps are also fitted to the crank-shaft bearings, so that this may be done without disturbing the crank-shaft itself.

Another peculiarity, which is prominent in Fig. 2, is that the push-rods for the exhaust-valves are enclosed behind inspection-covers, which are screwed to the cylinder-castings, and as the inlet-valves are of the auto-

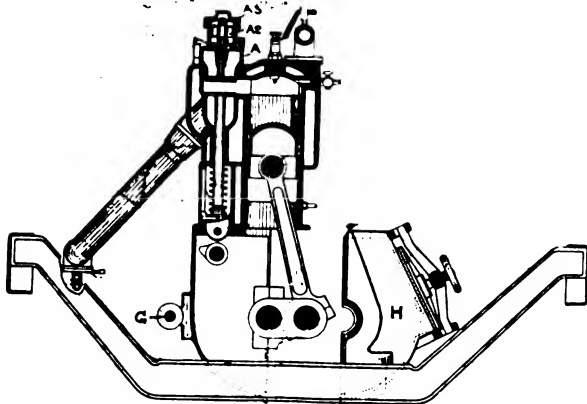


Fig. 4.—The 25-h.p. Winton Car. Transverse section through the engine showing, on the right, one half of the crank-chamber, H, removed from its normal position. The crank-shaft is held by independent bearing caps so that this may be done without affecting the alignment.

matic type there is not a single valve-spring or push-rod to be seen anywhere. The cylinders are cast in pairs, and, bolted to the top of the casting above the exhaust-valves, are the inlet-valve-housings, A, which are also cast in pairs. Small cylinders, A¹, are cast above each valve, and these contain the pistons, A², which are fixed to the inlet-valve-stems for the purpose of obtaining a pneumatic control on the amount which they are allowed to open under the suction of the engine. This construction is shown more clearly in the sectional drawing, Fig. 4, where the arrangement of the valve-springs is also indicated. Screw caps, A³, are fitted to the tops of the cylinders, A¹, in order to facilitate inspection. Air is pumped continuously into the space beneath the pistons by a simple single-acting air-pump, B. This pump is mounted in front of the engine and is driven, by a connecting-rod, from a crank-pin provided for the purpose on the end of the cam-shaft. Passing through the pipe, B¹, the air reaches a small

reservoir, B² (Figs. 3 and 5), placed between the cylinder-castings, which equalises its pressure, and from this it is led directly to the cylinders, A¹. Communicating with the chamber, B², is another pipe, B³, which is fitted with a hand and foot-controlled valve communicating with the atmosphere. By operating this valve—which is never allowed to close completely—the driver is able to regulate the air pressure and thus control the "lift" of the valves.

Carried by the induction-pipe, C¹—which passes across between the two inlet-valve-chambers—is the carburettor, C. In this, is an annular float made of varnished cork, which surrounds a central jet. Air enters below the jet and passes upwards, direct to the induction-pipe additional uncarburetted air being admitted by an automatic valve, C², in order to compensate the richness for variations of speed. Petrol is carried in a tank at the rear of the chassis, but before reaching the carburettor, it is forced into a smaller tank, situated on the dash, so that gravity feed is always available for the purposes of starting.

(To be continued.)

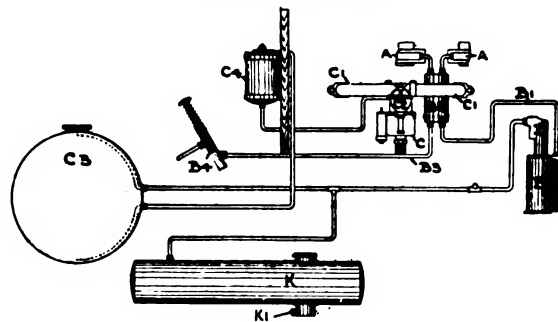


Fig. 5.—The 25-h.p. Winton Car. Diagram of the pneumatic control system by which the lift of the atmospheric inlet valves is varied by the driver. Also shown is the system of piping for the fuel and oil feeds which are forced from their tanks by air pressure.

THE NEW 12-15-H.P. DE DIETRICH CAR.

It is no small event when such a famous firm as the De Dietrich Company places upon the market a car which, while it retains all the excellent characteristics of their most recent models, can be sold at such a price that it is at once available to that already large, and still increasing, section of the public who fix a maximum of £500 as the price which they are either unable, or unwilling, to exceed when purchasing the chassis of their

There are no striking departures from orthodox practice in the general design of the chassis, but in almost every detail there is evidence of a strong desire to effect some improvement over accepted methods. Although an ordinary cone-clutch has been employed, for instance, it transmits its power in an original way, and is so constructed that it may be dismantled in a few minutes. Similarly with the gear-box, which is of the Panhard sliding-spur-wheel type, provision has been made so that it can be easily taken down without disturbing other parts of the transmission system. Another refinement is the introduction of a spring into the operating gear for the rear brakes, which facilitates their gradual application. Side-chains are, as is usual in De Dietrich cars, employed for the final transmission to the road-wheels, and about 17 h.p. is available from the nominal 12-h.p. 4-cylinder engine.

The Engine.

Inlet and exhaust-valves are alike arranged on the same side of the engine, which has the cylinders cast in pairs. Inspection-plugs are arranged above them, and in those over the inlet-valves are ignition plugs of a special pattern suitable for use with the high-tension Simms-Bosch magneto. Very great care has been taken to protect the high-tension wires, and they are, for this purpose, enclosed in insulating tubes which conduct them close up to their plugs. Instead of having an ordinary screw terminal, the "Oleo magneto" plugs are provided with very neat couplings which enable the wires to be instantly disconnected, while at the same time protecting them from damp, and preventing them

Fig. 1.—The 12-15-h.p. De Dietrich Car. Front view of the new chassis, showing the artistic design of radiator which, although not very pronounced, is nevertheless a characteristic feature of the latest De Dietrich Cars.

cars. Messrs. Jarrott and Letts, who control the interests of the De Dietrich firm in England, have been at considerable pains to have this new model constructed for the English market, for they realised, from the importunate demands of would-be purchasers, how popular such a car would instantly become. And even without the name De Dietrich, this chassis—which is shown for the first time at Olympia—could hardly fail to achieve the success which its merit deserves.

Constructed on the most up-to-date lines, it is, in fact, similar in appearance to the new 40-h.p. and other 1906 models. There is a keynote of simplicity about this "little" De Dietrich chassis, which does much to emphasise its refinement of detail and the strength of its main members; while the external appearance is at once neat and characteristic, its principal distinguishing feature being the artistic outline of the radiator, which bears the blue enamelled emblem of the De Dietrich Company.

Fig. 2.—The 12-15-h.p. De Dietrich Car. View of the Engine showing the Carburettor, the Pressure Valve for the petrol, and the neat fittings by which the high-tension wires are connected to the ignition plugs.

Fig. 3.—The 12-15-h.p. De Dietrich Car. View of the Engine, showing the Simms-Bosch High-Tension Magneto and the belt-driven fan, which has a spring adjustment. On the top of the vertical tube which carries the fan will be noticed a cap, which is provided to facilitate filling the crank-chamber with oil; being fitted with a gauze cover, it also serves as a vent.

from coming loose. The magneto itself is on the opposite side of the engine, where it is mounted on a bracket at the side of the crank-chamber, and is gear driven from the front end of the crank-shaft. No "timing" is provided, either automatically or by hand, but, when starting, the act of inserting the handle causes the ignition to be temporarily retarded while the starting handle is actually in use.

On the same side of the engine as the valves is the carburettor, which has a simple horizontal type of throttle valve provided with an auxiliary-air port which uncovers as the throttle is opened. Mounted on the dash is a small lever interconnected with a needle valve above the jet, and the driver is by this means enabled to cut off the supply of fuel entirely. Pressure feed is employed, and the petrol tank is situated at the rear of the chassis, a small hand-pump being provided for raising the pressure in the tank when starting. No governor is fitted, but the throttle valve is controlled by a hand-lever above the steering-wheel, and it is also interconnected with an accelerator pedal.

Forming the front of the bonnet is the radiator, which is of the finned tube type, and immediately behind it is the belt-driven fan. An exceedingly neat arrangement has been adopted in connection with this portion of the machinery, for the fan is mounted on a vertical tube, which forms a vent for the crank-chamber and an oil filler cup at the same time. Instead of mounting the fan-pulley on the crank-shaft, it is placed on the spindle of the gear-wheel which drives the magneto, and it will also be noticed that a helical spring is provided for automatically taking up any slackness which may occur in the belt. A centrifugal circulating-pump is employed to force the water through the cylinder-jackets and radiator, and this is driven by a chain from the crank-shaft. Drain-cocks are fitted in the jackets to enable them to be emptied when required.

(To be continued.)



THE NEW 14-22-H.P. GERMAIN.—A LIVE-AXLE CAR.

In the very front rank for up-to-date design and sound construction themselves

mobiles of the day, and the new model which Captain idence of which will

Fig. 1.—The 12-14-h.p. Germain Car. Side view of the Chassis showing the live-axle drive, which has not previously been employed on this make of vehicle.

The 12-14-h.p. Germain Car.—View of the new live-axle model, showing the particularly neat bonnet and radiator which form the distinctive external features of this handsome vehicle.

in every way be worthy of the name it bears. Hitherto all Germain cars have been of the chain-driven type, but this new model, which will now be the least powerful of the

reduced, which permits the steering to have a wider range.

(To be continued.)



THE 1906 CLEMENT CARS.

The 18-h.p. Clement Car.—View of the Chassis from above, showing the special suspension for the frame, the live-axle drive, and enclosed multiple-disc-clutch, which are features of these cars. All the 1906 models now have pressed-steel frames and "Mercedes" type gear-boxes.

ON the new Clement cars the alterations have been what may reasonably be termed radical, although at first sight it might not appear to the uninitiated that such is the case. Merely by casually glancing at our illustration, no evidence is at once apparent of any great changes having taken place since we published a similar view of a Clement chassis at the time of the last Olympia Show. This is due, mainly, to the fact that the modifications have been in construction rather than in design, for the

series, has a live-rear-axle driven by a propeller-shaft. In most other respects, however, it retains those constructional peculiarities—of which the separate steel cylinders with their brass water-jackets is the most important—which have for some time characterised Germain vehicles in the past, although a radical departure from the Germain standard has been made in the external appearance by the adoption of a particularly distinctive, but at the same time very attractive, design of radiator.

Constructed of pressed steel, the side-members of the main frame are bent upwards at the rear in order to reduce the angularity of the propeller-shaft and to allow plenty of room for the springs without unduly raising the body from the ground. For the same reason, too, these springs are placed outside instead of beneath the frame, but this is now quite a usual feature in the construction of many up-to-date cars. Shackles being used at both ends of the rear springs, radius-rods are employed to tie the axle-casing to the frame. In front, the width between the side-members is much

Clement cars, which Mr. E. H. Lancaster has made so popular in this country, are still built on the same general system as before.

By far the most important of the new features are the pressed-steel frame and the Mercedes gear-box, but the former is still supported on modified three-quarter elliptic springs behind, while the latter is bolted to an under-frame as it was in the old type. This under-frame, however, no longer supports the engine also, as

it did previously. Another important modification of detail is the introduction of internal expanding brakes on the rear wheels, band brakes having been employed previously.

No alteration has taken place in the engine except that it is now fitted with synchronised high-tension magneto ignition (Gianoli) and has forced lubrication to the bearings. This year the control is obtained by the manipulation of levers mounted above the wheel on a stationary quadrant, instead of by rotating-handles which previously formed part of the steering-wheel itself.

Other slight modifications are the placing of the tie-rod, for the steering-gear, behind the front axle, and the introduction of "push" pedals in the place of

those formerly used, which had to be pressed downwards.

Five different models are being built for the new season, including vehicles of 10, 14, 18, 24, and 30-h.p. Of these, the most powerful has a six-cylinder engine, while the smallest has a twin-cylinder engine, all the others having engines with four cylinders. With the exception of two models, all the chassis are of the live-axle type; but the 24 and 30-h.p. cars are chain driven, and the feature in their transmission is that the differential countershaft casing is separate from the gear-box and is removed from it, so that a short propeller shaft has to be interposed between them. From the engine to the gear-box, however, all models are built on the same standard lines.



A SAFETY STARTING-HANDLE.

Fig. 1.—The Reid-Riekie Starting-Handle.—View of the device fitted to a Car, showing the pawls which hold the ratchet and prevent a back fire from being transmitted to the handle.

ONLY those who have experienced really painful results from back-firing when starting a petrol engine, are fully capable of appreciating the advantage of a safety device for preventing accidents from occurring in this way. In principle, the action of the Reid-Riekie starting-handle—of which we give two illustrations—is extremely simple, for it merely consists in the introduction of a slipping-clutch between the handle proper and the spindle which engages with the crank-shaft; provision for preventing any shock reaching the hand being made by means of a suitably arranged pawl-and-ratchet gear.

In Fig. 2, the device is shown separately, and its action is almost self-explanatory from the system of lettering adopted. On one side of the clutch, A³ B³, the handle, A, forms the principal member, while the other side of the clutch is connected to the coupling, B, which engages with the crank-shaft. When the cap, A⁴, is in place on the thread, A², it keeps the two members of the jaw-clutch engaged on account of the action of the spring, B⁴. As the jaws on the clutch are

Fig. 2.—The Reid-Riekie Starting-Handle.—Separate view of the device showing the flat-bevelled Jaws, A³ B³, which, being only held in engagement by means of a Spring, B⁴, allow slipping to take place in the event of a back-fire, but yet afford sufficient grip to start the engine.

not only very flat, but also slightly bevelled, any pressure in excess of that necessary to overcome the compression of the engine causes them to slip over one another. In order to prevent the least shock being transmitted to the handle, a ratchet-wheel, A¹, is fitted, and this is constantly ready to be engaged by suitably-arranged pawls as seen in Fig. 1. Directly a back-fire occurs, therefore, the pawls prevent the handle from flying back, but the slipping-clutch allows the engine to make its partial rotation in the opposite direction without causing damage.

Table of Reference Letters for the Reid-Riekie Steering-Handle Illustrations.

A Handle.	B ¹ Spindle for H.
A ¹ Ratchet-wheel.	B ² Clutch member carried on squared end of B ¹ .
A ² Thread cut on boss of A ¹	B ³ Jaws on H ²
A ³ Part of jaw-clutch.	B ⁴ Clutch-spring.
A ⁴ Screw-cap.	B ⁵ Spring for B
B Coupling to engine crank-shaft.	

THE NEW ARROL-JOHNSTON PETROL CAR.—PART II.

(Continued from page 1411.)

The Special Features.

LEAVING out of consideration, for the moment, the twin-cylinder engine itself—since no merely brief description can adequately give a good idea of its con-

formed in one piece with the cylinder-heads and valve-chambers. The exhaust-box employed is very effective as a silencer, but it does not introduce any back-pressure and so absorb power; when used with the smaller engine, at any rate, it even appears to increase the engine power, for we have ourselves seen this engine, under load on the test bench, speed up considerably each time the silencer was connected to it, and slacken down again when allowed to exhaust direct to atmosphere.

Throughout the whole of the transmission gear, roller-bearings of the firm's own make are employed, while ball-bearings are introduced wherever end-thrusts are imposed on any of the revolving shafts. Special features are, moreover, made of the universal-joints at each end of the propeller-shaft, and of a "spring-drive" device that is introduced between the propeller-shaft and the bevel-gearing for the live axle. The gear-box itself, which—like the engine—is fixed direct to the pressed-steel main frame, is suspended from three points to ensure the necessary flexibility, and the upper half can be taken off independently for

Fig. 4.—Front view of the 12-15.

struction—we now propose, before considering each part in detail, to mention the most striking or unusual characteristics of the new cars. The engine control on both models is an instance in point, for although the power and speed are controlled by a throttle-valve, it admits pure air to the cylinders when the explosive mixture is completely shut off, and although a low-tension ignition system is employed, yet no provision is made for advancing or retarding the spark when running. A novel type of automatic governor, operated by the suction of the engine, has also been devised. Another unusual feature about the ignition system is that no separate cam-operated mechanism is required by the igniters, since the exhaust-valve gear is made to serve this purpose on the twin-cylinder engine, and the rods that actuate the inlet-valves do so on the larger engine; in the latter case, it is true that the time of ignition can be retarded for starting, and that provision is also made for high-tension ignition from a battery, as a stand-by.

Neither engine needs any external lubricator, since the oil is constantly circulated through all the bearings by a special pump, and neither engine has its cylinders

Fig. 5.—The 12-15-h.p. Arrol-Johnston Chassis. Rear view, showing the "Live" Axle.

making a thorough inspection. Similarly, the upper portion of the back-axle-casing is rendered detachable, while, as already mentioned, the road-wheels are mounted outside the ends of the axle-tubes, instead of being merely fixed to the axle-shafts that drive them. The axle is not

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Fig. 6.—Side elevation of the 24-30-h.p. Arrol-Johnston Chassis.

Figs. 8 and 9.—Two views of the 12-15-h.p. Arrol-Johnston Engine, with the Carburettor fixed in place above the cylinders.

Figs. 11 and 12.—Cross-Sections showing the internal construction of the 12-15-h.p. Arrol-Johnston Engine

Fig. 7.—Plan of the 24-30-h.p. Arrol-Johnston Chassis.

—the fan drawing air through the finned-tube radiator in front of the bonnet.

Also specially deserving attention, are the brakes and the steering-gear, both being of unusual and particularly neat design. The former are of the internal-expanding pattern, with easily renewable shoes and a single adjustment screw, while the latter is of the screw-and-nut variety.

petrol-tank is fixed across the centre of the frame, that a curved form of dashboard affords considerable protection to the driver, and that the radiator is built up of horizontal tubes. Also noticeable are the single-lever control above the steering-wheel, and the hooter-bulb that projects up from its centre; as on another well-known make of vehicle, the hollow steering-pillar is utilised for connecting the hooter (in front) with the rubber-bulb.

The 12-15-h.p. Engine.

So compact is the Arrol-Johnston twin-cylinder engine that, even in the two photographs which are given in Figs. 8 and 9, it is difficult to recognise the location of the various parts by merely glancing at it. We therefore reproduce a view showing some of the chief moving members (Fig. 10), and also line drawings of a sectional nature (Fig. 11 and 12). These, taken in conjunction with one another, will be found to convey a good idea of the entire construction.

Fig. 10.—Some of the chief Moving Parts of the 12-15-h.p. Arrol-Johnston Engine.

and can similarly have any back-lash taken up in an equally simple manner.

Both models are shown in our illustrations, the 12-15-h.p. chassis in Figs. 1 to 5, and the 24-30-h.p. chassis in Figs. 6 and 7. Fig. 1 is a view taken looking down from an elevated position on the "off" side, and Figs. 4 and 5 (front and rear views) are also reproduced from photographs. The other figures are line drawings, being side elevations and plans of both cars.

From these illustrations, all the leading characteristics can be gathered, with the assistance of what has already been said, and we can therefore proceed to a more detailed consideration of the more important individual parts. It will be seen, for instance, that the

In Fig. 8, it is seen complete, with the "Hele-Shaw" clutch arranged inside the fan-armed fly-wheel, and in Fig. 9 one of the oil-tight casings, C, has been taken off to expose to view the interior of the crank-chamber, and the mouths of the two cylinders. Both views show it more or less from the right-hand side, but it should be understood that the opposite side is exactly similar. The parts grouped in Fig. 10 include two of the pistons, A¹, the crank-shaft, B¹, the two connecting-rods, C², one of the rocker-castings, C¹, and two of the links, A², that connect one pair of pistons to their rocker, C¹.

There are two main parts—the cylinder-casting, A, and the crank-chamber casting, B. The former is bolted down on the top of the latter, and has flat plates, top and bottom, to complete the water-jacket.

(To be continued.)

THE 1906 LEGROS AND KNOWLES "IRIS" CARS.—PART III.

(Concluded from page 1426.)

The Recharging Dynamo.

VERY ingenious is the arrangement of the dynamo that recharges the accumulators, for not only does it do so quite automatically, but there is no switch mechanism needed for breaking and making the electric circuit. The dynamo itself is specially wound with a demagnetising "series" coil added around the ordinary "shunt" coil upon the field-magnets, and thus the "voltage" of the current generated by it remains practically constant, no matter at what speed it may be driven. It is fixed alongside the crank-chamber on the right-hand side of the engine, and is driven by a flat belt that is always kept at the required degree of tightness by a spring-loaded jockey-pulley. Being completely self-enclosed, no dust can get into the interior, and being quite an auxiliary mechanism on the car, no serious inconvenience would arise even if anything were to go wrong with it.

As already explained, one battery or the other is rendered operative for the ignition system and for the

part rendered clear in Fig. 6, which not only shows the complete apparatus fixed to the branched induction-pipe, A, but includes (on the left) another view in which the inner member, A⁶, of the throttle-valve has been removed, and the float, A⁸, has been lifted out of the float-feed-chamber, A³.

Formed at one side of the float-feed-chamber, A³, is a separate compartment, up through which the petrol has to pass, and this compartment contains a filter—removable with the screw plug, A⁴, at the top. The petrol finds its way into the float-feed-chamber centrally from above, a simple valve—against which the float presses upwards—controlling its flow. Being quite plain, and having no other guiding mechanism, a blind-ended tube is let in to the centre of the float from beneath, and this tube rides upon a fixed pin.

The spray-jet is situated in a small separate chamber, formed solid with the throttle-valve casing, and lies immediately beneath the inspection-plug, A⁵. Into it—from behind, and therefore not visible in Fig. 6—the main-air supply is led direct by a pipe that passes across the engine from the neighbourhood of the exhaust-pipe, and from it into the throttle-valve is the passage, A⁷. The air entering this way passes across the top of the jet, and so becomes carburetted.

The bulk of the air required—except when the engine is running quite light—enters the throttle-valve casing direct from the atmosphere, and is admitted through one port at the extreme top, and a second port exactly opposite the mixture port, A⁷. Both streams, however, come in through the special silencer, A², and both are controlled simultaneously with the port, A⁷, by the moving portion, A⁶, of the throttle-valve. The two streams of pure air are caused to impinge directly upon the stream of carburetted air, by radial funnels, A⁹, inside the moving member, A⁶, and thus they are caused to thoroughly intermingle before passing out beneath into the induction-pipe, A. Such is

the arrangement of the ports that the richness of the mixture is always correctly maintained to suit varying speeds and loads.

One lever—that above the steering-wheel—advances the ignition at the same time that it opens up the throttle. No noise can be made by the connecting mechanism, because flat springs are used in lieu of ordinary hinged joints.

The Gear-Box.

Referring to Fig. 7—which is a view of the opened-up gear-box from above—it will be seen that the lower casting has hinge-lugs, E, at the back, and a swivel-pin, E¹, in front, for enabling it to be secured at these three points to the chassis. The short shaft that is coupled up to the main-clutch has the two ball-bearings, E², and is solid with the wide spur wheel, E³. It also receives the forward end of the driving shaft, E⁴, upon which are the two sliding members. The wheel, E³, is double the usual width, because it serves two distinct duties; it drives the lay-shaft through the large wheel with which

Fig. 6.—The "Iris" Carburettor. On the right, it is shown complete with its Throttle-Valve, Induction-Pipe (A), and Auxiliary-Air Silencer (A²). In the views on the left, the Throttle-Valve (A⁶), and the Float (A⁸) have been removed, and are shown separately.

carriage lamps when the switch on the dashboard is thrown over to either of its "on" positions, and at the same time the idle battery is connected up to the dynamo. Ordinarily, it would, of course, be necessary to fit a special "cut out" in the dynamo circuit to prevent the dynamo from discharging the battery when its speed were insufficient for generating the necessary charging current. Instead, however, use has been made of an aluminium cell such as those now used for converting alternating currents into uni-directional currents, and this serves the same purpose as an automatic cut-out. Without any moving parts, or delicate contacts, the aluminium cell allows the current to flow from the dynamo to the battery, but prevents the reverse action from occurring.

The Carburettor.

Numerous are the unusual minor details in which the Legros and Knowles carburettor, with its throttle-valve, differs from any other. They are for the most

Fig. 7.—View, from above, of the Legros and Knowles Gear-box, with the upper half removed. The three "points" of suspension (E , E' , and E'') are prominent, as also are the ball-bearings on all the shafts. At the time our photograph was taken, the "Reverse" gear was in mesh.

it constantly meshes, and its teeth correspond with those of the internally toothed sliding wheel, E^4 . Thus it is that the lay-shaft is always caused to revolve at a comparatively slow speed, and that a direct-through-drive is obtained on the top (3rd) speed.

§ Also fixed to the lay-shaft, which—like the other shafts—has ball-bearings, are two other spur-wheels, the larger being of the usual width and serving for the second speed, but the smaller, E^6 , being of twice the ordinary width. This smaller pinion, E^6 , is constantly in mesh with one, E^7 , of the intermediate wheels that provide the "reverse" gear, besides being available for giving the first speed forward. There are, it will be observed, two wheels on the intermediate ("reversing") shaft, which lies below the lay-shaft, and the same large

sliding wheel on the driving-shaft, E^5 , thus serves for giving the "reverse" or the first speed—in our illustration it is shown in its "reverse" position.

So clearly shown is the mechanism in Fig. 7 that no further explanation of its action is needed. It will readily be understood that the sliding-rod, E^8 , controls the "reverse" and the 1st speed, and that the other rod, E^9 , introduces the 2nd or 3rd speed. The gear-lever is caused to engage with the one or the other, according as to which of the parallel slots it is caused to occupy in the quadrant. Very simple is the device employed for locking the sliding-rod that is not actually in operation, for this merely consists of a ball dropped in between the two rods inside their guide casting. Both rods have \square -shaped slots that come opposite the ball when the rods are in their neutral positions, and thus the ball is only free to move

sideways from slot to slot when the two slots come opposite; at other times, the operating-rod makes it lock the non-operating rod. All the gear wheels used for the transmission mechanism are made of nickel-steel.

The Universal-Joints for the Propeller-Shaft.

With the special object of eliminating all friction surfaces—except those necessary for giving a slight telescopic action to the propeller-shaft—and of therefore rendering lubrication superfluous, and back-lash impossible, the universal-joints on the "Iris" car rely entirely upon the springy action of steel plates for giving the required flexibility in all directions. In Fig. 8 we give two large views of one of these joints, and also two smaller views of a complete propeller-shaft, fitted with

Fig. 8.—Two large views (from the side and from one end) of the "Iris" triple-plate, Universal-joint, and two smaller views of the propeller-shaft, fitted with these special joints at each end.

them, and think that these illustrations will give an even better idea of the construction than could be conveyed by any written description only.

Fitting over the square ends of the driving and the driven shafts, are the two-armed forgings, F, and at right-angles to them are the corresponding bridge-pieces, F², that are bolted to the propeller shaft by the flanged couplings, F¹. Introduced between the forgings, F and

the adjustable eye-bolt, G⁴, enables the stay to be tightened to the precise extent necessary, and, if taken in conjunction with the fittings at each end of the stay itself, renders it easy to make both halves act equally; the eye-bolt, G⁴, is adjustable from inside the casing, G, and it has a lock-nut outside. The aluminium casting, G, is secured to the axle-tubes by tangential bolts, G², as well as by the clip-bolts seen in the illustration.

Fig. 9.—View, from behind, of the Legros and Knowles "Live" Rear Axle, with the inspection cover—through which the entire Differential-gear can be removed—taken off. The double ball-bearings (G⁷) which carry the Road-Wheel on the outside of the Axle-Tubes are seen in place in this illustration.

F², are the three spring-steel plates, F³, and the two cross-coupling-rods, F⁴, these parts being secured together firmly by rivets and being grouped in the following manner. The first plate, F³, has two opposite corners fixed to the forging, F, only, and its other two opposite corners fixed to the first coupling-rod, F⁴; the second plate, F³, is similarly riveted, firstly to the last-mentioned coupling-rod, F⁴, and, at its other opposing corners, to the second coupling-rod, F⁴; while the third plate, F³, is in just the same way interposed between the second coupling-rod, F⁴, and the forging, F².

By this construction, the power is transmitted through all three plates in sequence, and yet each plate is free to spring sideways if called upon to do so. This freedom of motion in all three plates—alternately at right angles in each—provides the necessary universal motion; the only friction set up in the entire device is purely molecular and is well distributed over a large area. The shape of the plates renders them strong to resist the torsional strains imposed by the engine, and there is practically no tendency for them to buckle.

The Live-Rear-Axle.

Referring to Fig. 9, in which the inspection cover has been taken away, the method adopted for making the aluminium casting and the two steel tubes form a rigid axle is well shown. The lug, G¹, is that to which the torque-rod is attached—this rod relieving the side-springs of all twisting strains—and the three brackets, G³, are those that carry the brake-operating mechanism for both sets of hub-brakes. Also fixed to the outer brackets, G³, is the stay, G⁴, by which any tendency for the axle to sag is eliminated. Stays such as this are well-known in connection with live axles, but it is not always that means are provided for ensuring that they perform their real functions properly. In this case, however,

At each end, the axle-tubes carry the double ball-bearings, G⁷, for the road-wheels, these wheels being therefore mounted quite independently of the enclosed shafts—which merely drive them. No part of the weight of the car is consequently taken by the revolving (or "live") portion of the axle, and a further advantage is derived from the fact that the "live" shafts can at any time be drawn out after the hub-caps have been removed. Flanges are provided on the axle-tubes at each side of that portion (G⁶), that is encircled by the spring-brackets, and, from these same brackets, the radius-rods pass forward to the frame. It will thus be seen that although the radius-rods alone take the "drive" of axle—i.e., it is they that push the whole car when the engine is propelling it—the whole of the tendency that there is for the axle-casing to *revolve* backwards (as a natural corollary to the shafts revolving forwards), is counterbalanced by the central torque-rod.

Of chief interest in the "Iris" axle is that portion of its construction that permits the differential-gear with its bevel-wheel, G⁵, to be taken out for thorough inspection, or for changing the bevel-wheels, without interfering in any way with the casing, G, or the axle-tubes. This is provided for by the straps, G⁶, for the bearings, and by the manner in which these independent bearings are arranged for the outer member of the differential-gear. By taking off these straps, the differential with its bearings can be lifted out complete, provided, of course, that the "live" shafts have been drawn out sufficiently to clear this central mechanism.

Alternative bevel-pinions, with their corresponding bevel-wheels, widely differing in size and gear ratio, are made by Legros and Knowles, for fitting to the car, any pair being easy to fit in place without calling for structural alterations of any kind. Each wheel has the required thickness of collar formed behind it to ensure correct mesh with its fellow.

HIGH-TENSION MAGNETO IGNITION.—PART XVII.

THE GIANOLI SYSTEM.

(Continued from page 1427.)

THE other end of the primary is "earthed" by being fastened directly to the iron core, and it is only through this winding that the secondary coil obtains its "earth" connection. The live-end, C^1 , of the primary coil passes through an insulated bush in one of the end-plates, B^3 , and the live-end of the secondary winding is laid bare, and is coiled up on the face of a soft rubber pad, as is shown in Fig. 5. Pressing against this pad is the large flat end of a steel rod, D^1 , which passes through the centre of the armature spindle, B^1 (Fig. 4), and terminates in a semi-spherical knob at the other end. This rod, D^1 , is, of course, thoroughly insulated from the spindle, B^1 , but the insulation at the extremity is proportioned so that a safety-spark-gap, D^2 (Fig. 5) is formed between a star-shaped steel washer in contact with D^1 and the armature spindle, this being provided in order to protect the armature coil in the event of a fault occurring in the external circuit. The connection between the inner end of the rod, D^1 ,

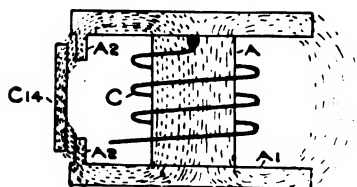


FIG. 6.—The Gianoli High-Tension Magneto.—Diagram showing how the Magnetic-field, induced by the primary current in the armature core, acts upon the Trembler, C^{14} , which automatically operates the Contact-breaker.

FIG. 8.—The Gianoli High-Tension Magneto.—Views showing the High-Tension Distributor, which is constructed so that it may be mounted on the engine in the same way as an ordinary commutator. This device can also be used with a battery of accumulators; the Contact-maker, N^2 , which is only used for this purpose, is visible in the right-hand view.

and the end of the secondary coil, D , is effected solely by the simple contact between the two members, and a good connection is ensured by the elasticity of the rubber pad. Some connection which shall be easy to

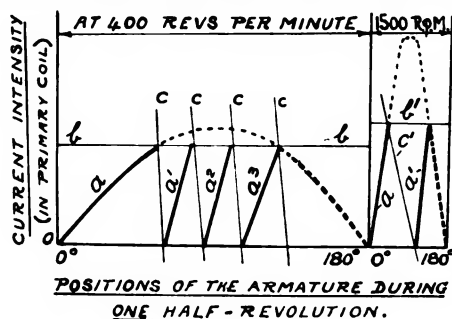


FIG. 7.—The Gianoli High-Tension Magneto.—Diagram illustrating the manner in which the automatic Contact-breaker acts as a voltage regulator by interrupting the current before it reaches its maximum value. After each interruption the current again rises rapidly and operates the Contact-breaker once more—as is indicated by the lines, a , a^1 , a^2 , a^3 —and several successive interruptions are obtained in this way at slow engine speeds. This diagram—which is only based on assumed data—enables these points to be compared for engine speeds of 400 and 1,500 revs. per min., respectively.

undo is, of course, essential in this machine on account of the armature end-plate having to be removed occasionally; the manner in which it is now effected not only provides a coupling of the simplest character, but one which renders the fine wire of the coil end practically immune from the chances of accidental breakage.

The Low-Tension Gear.

The general peculiarities of this mechanism—which, in itself, is the most important of the numerous features of the Gianoli system—have already been mentioned, and only the details of its construction, therefore, remain to be described. The "live" end of the primary winding, which passes through the armature end-plate, B^3 , is secured by a screw to an insulated casting, C^6 , which is prominent in Fig. 5. This casting, C^6 , is placed *outside* the end-plate for convenience in making a connection to

the condenser, as will be explained presently. It is formed with two radial arms, one of them having the hole drilled in it which receives the live end of the primary winding; the other carries the adjustment screw, C^7 , forming part of the contact-breaker, C^3 . This adjustment screw is thus virtually the live end of the primary coil. It projects back through the bearing-plate, B^3 , and against its platinum-tipped end rests the contact point of the other half of the contact-breaker, C^4 . This moving portion of the contact-breaker—which is illustrated in detail in Fig. 5—is made of spring-brass, and it is not, therefore, directly influenced by the magnetism. Its operation depends instead on the action of the separate trembler, C^{14} , which consists of two spring-steel blades carrying a soft iron "keeper" between their upper extremities. Both trembler and contact-breaker are attached by the same screws to the brass end-plate, B^3 , but the trembler is mounted adjacent to the plate, so that in its motion towards the armature—which is made automatically under the influence of the induced magnetism—it will strike the contact-breaker a blow, and thus separate the contacts more quickly than would be the case if the trembler itself made the earthed contact against the screw, C^7 .

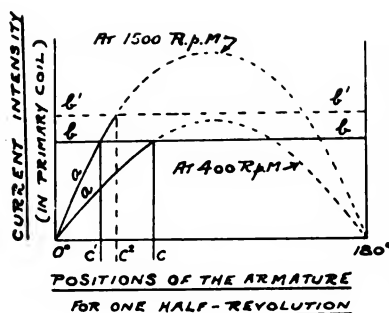


FIG. 9.—The Gianoli High-Tension Magneto. — Diagram illustrating the effect of the Contact-breaker in automatically advancing the time of ignition from c to c' , and the counteracting effect of magnetic lag which partly neutralises this advance so that its real value is only from c to c'' .

under working conditions. Our readers are already familiar with the fact that the passage of an electric current, in a coil of wire wound on an iron core, immediately converts the iron into a powerful magnet. Thus then does the armature core become an electro-magnet when the current begins to be generated in the primary coil.

In the Gianoli machine, this magnetism—or at least a portion of it—follows the path indicated in Fig. 6, the iron being specially arranged for it to do so. When, therefore, the primary current reaches a certain value, the magnetism becomes sufficiently powerful to attract the trembler, C^1 , towards the poles, A^2 . In so doing it causes the contact-breaker to interrupt the current, the magnetism, therefore, at once dies down, and the trembler flies back to its normal position; thus allowing the contact-breaker to close again. It is important to notice that the trembler is unaffected by the permanent magnets themselves, because, when the armature is passing through its “neutral” position, practically all the magnetism from the magneto passes through the centre of the armature core which thus “short-circuits” the poles, A^2 . It is, of course, only in the neutral position that the poles, A^2 , come directly under the influence of the permanent magnets.

When the machine is running slowly the current is interrupted several times at each firing point because the trembler is so “set” that the current strength required to operate it is, under all ordinary circumstances, considerably below the “maximum.” At very high engine speeds there is less time for the trembler to operate, and the interruptions of the primary current are fewer in consequence. This is diagrammatically illustrated in Fig. 7, in which two curves representing the fluctuations in the magnetising force of the armature at speeds of 400 and 1,500 r.p.m. respectively, are shown. At the slower speed, the magnetising force, which is re-

The soft-iron “keeper” of the trembler is mounted so that it is always opposite to the two small pole-pieces, A^2 , on the armature core and it is these which attract the trembler at the right moment. The manner in which the poles, A^2 , become energised will be easily understood by reference to Fig. 6, which shows diagrammatically the magnetic circuit formed

presented by the line, a , rises with the increasing voltage of the armature, until it attains a certain value represented by the height of the line, b , above zero. At this instant it is sufficiently powerful to attract the trembler, and simultaneously, therefore, the circuit is broken, and the magnetising force ceases to exist. Almost immediately, however, the circuit is closed again, and the magnetising force, a' , quickly rushes up to its active value once more, and so operates the trembler again. This, it will be noticed, occurs four times—according to the diagram, Fig. 7—at 400 r.p.m., but only twice at 1,500 r.p.m. But these values are only assumed for the purposes of explanation.

The trembler must essentially take a certain interval of time to vibrate, even once, to and fro, and as this interval is of fixed duration for any particular trembler, it consequently represents a larger proportion of a complete revolution at high, than at low, speeds. This point is graphically illustrated, in Fig. 7, by the relative slopes of the lines, c , c' , in the left and right-hand diagrams; and it is this which accounts for the fact that there are fewer interruptions at the higher speed.

The dotted continuation of the curves, a , represents the values which the armature current would reach if it were not interrupted along the line, b . It also graphically illustrates the effect of the trembler in automatically regulating the strength of the induced voltage, and, by so doing, protecting the insulation of the winding from excessive electrical strains. It will be noticed that in the right-hand diagram of Fig. 7 the line, b' , is drawn higher up than it is on the left. This is due to the fact that the magnetism lags somewhat behind the current producing it, which consequently attains an increased value at higher speeds before the trembler is operated.

The Condenser.

The condenser is contained in a specially-shaped aluminium case, F^1 , which is secured in place between the magnets, in such a way that it forms an arch over the armature, which it thus shields from dust. The connection to the live terminal on the condenser is made by a brass strip, F^5 , which presses lightly against the casting, C^6 . In the new models, however, this method will be altered and the casting, C^6 , will be replaced by a slip-ring, and the brass-strip, F^5 , by a carbon brush. The other side of the condenser is, of course, “earthed” in the usual way, so that it is electrically-connected across the contact-breaker, C^3 .

(To be continued.)

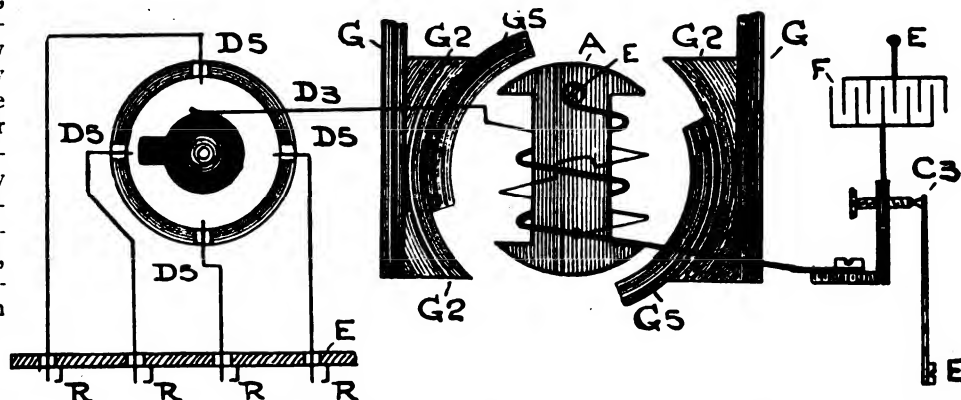


FIG. 10.—The Gianoli High-Tension Magneto. — Diagram of the Internal Electrical connections showing the Magneto system by itself. Battery and coil ignition can also be used as an auxiliary, but the wiring for this is shown in Figs. 13 and 14.

THE STANLEY SHOW.

THIS year the 29th Annual Stanley Show, which was opened at the Agricultural Hall by Sir Albert Rollit, M.P., on the 17th inst. and closes to-day (Saturday), appears to have recovered its position as a purely cycle exhibition. It is true there are still a certain number of motor vehicles, ranging from the motor bike to 5-ton steam lurry, but, as a class, they are not nearly so much in evidence as they were last year. This may be

Another new car is the "Kelvin," shown by the Century Motor Company, while the East London Rubber Company show the "Kerry" car, and the Civil Service Motor and Cycle Agency exhibit new models of the Pope-Tribune cars, for which they have the English agency. On Brown Bros.' stall, a two-seated doctor's brougham—with steering-wheel and control-levers inside the body—was shown alongside one of their standard 18-20-h.p. touring vehicles. Besides the 9-h.p. dog-cart, which is, perhaps, the best known of their standard models, Messrs. Jackson also exhibit a much larger car, fitted with a 16-h.p. four-cylinder engine.

There is a marked falling off in the number of motor cycle exhibits. Tri-cars are not nearly so numerous, and at least one well-known firm has entirely dropped the manufacture of these small machines. It is significant, too, that one of the most important firms still building tri-cars should have decided to adopt the extra wheel for their higher-powered models. This entails using a differential gear on the back axle, which means additional expense in construction, but it eliminates the most important drawback to the other type.

On the whole, however, we do not see that it possesses any great merits as a new type of machine, for while being now virtually a car as regards number of parts, it is still little better than a tri-car considered as a vehicle.

Apparently the extremely powerful motor cycles of last year have not met with unstinted appreciation, for

STANLEY SHOW.—The latest evolution of the tri-car! A four-wheeled vehicle, constructed by Phoenix Motors, Limited, which has the tandem seating peculiar to tri-cars. Just behind the front seat is a twin-cylinder engine from which the power is transmitted, by a chain, to a two-speed and "reverse" gear, of the epicyclic type, mounted on a countershaft. Another chain is used to drive the differential gear on the live axle.

accounted for by the fact that the Olympia Show is now also in full swing, so that as far as motor-car exhibits are concerned only those few firms who failed to secure space there are exhibiting at the smaller show, where they are mostly to be found in the "Minor" and "King Edward" Halls. Most prominent of these is the Hummer Company's stall, where no less than four cars and two chassis are on view. It is an even better exhibit of these popular vehicles than is to be seen at Olympia, where, as a matter of fact, the general reduction of space has only enabled them to show two complete cars. This year they are making only two standard models, viz., 10-12-h.p. and 16-20-h.p., both of which were on view, one model in particular—a five-seated double phaeton—being especially noticeable for its handsome finish.

An entirely new model, fitted with a four-cylinder 10-h.p. engine, is shown by the Star Engineering Company, who also exhibit their standard 7, 14, and 18-h.p. cars. On another stall is the little Starling car—first introduced last year—which has been exalted to the possession of a three-speed-gear-box and ball-bearing hubs. Taking the place of honour among the Corrê exhibits is the car which carried "General" Booth on his missionary tour last August. Under the imposing name of the "British" car a new vehicle is introduced to the public by the British Motor and Engineering Company. It has some unusual features, notably the radiator and the arrangement of the starting handle on the dash, and it is also fitted with a Fafnir engine.

STANLEY SHOW.—The Bentall Engine—exhibited by the Crypto Company—in which compactness is the ruling feature of the design. It has the ordinary mechanically operated valves, but instead of arranging the valve chambers on diametrically opposite sides of the cylinders, they are set at an angle in order to bring the cam-shaft closer to the crank-shaft.

the majority are now of more normal power, although there are still a few twin-cylinder machines, and three firms are even showing four-cylinder engines.

On the stand of the Crypto Car and Cycle Co. is a new engine, which we illustrate, and in "King Edward's" Hall, the Lloyd's Roller change-speed-gear—which was

fully described in our issue of the 4th inst.—is shown in operation. Quite an important exhibit of component parts was shown by Messrs. Gauthier and Company, the well-known agents for the new Bassée-Michel high tension magneto, which recently formed the subject of a special article in our columns.

CORRESPONDENCE.

* * *The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.*

THE NEW TOURIST TROPHY REGULATIONS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—All open-minded automobilists will be glad to see that the Automobile Club propose to admit steam cars to the great automobile event of the year, under conditions which will give steam cars a chance of finishing the course which is set before them.

The Automobile Club, however, propose to give steam cars considerably more fuel than is allowed to petrol cars, and steam cars are to be given the opportunity of winning the Trophy on an allowance which is admittedly arbitrary.

The foundation of the Tourist Trophy Race was that all cars should have the same fuel allowance, and that the car which is most efficient should win. The proposal of the Automobile Club destroys the whole foundation of the race, as the suggestion is that an admittedly inefficient car may win the Trophy, and the public will only recognise the bare fact that a steam car has won it, and will overlook the important factor that the car had an extra allowance of fuel on account of its inefficiency.

I sincerely trust that the Committee will re-consider this matter, and will revert to the foundation of the race, viz., an equal quantity of fuel for all cars, and the most efficient car wins.

Would it not be preferable that a special cup should be instituted or steam cars, to be run for at the same time and over the same course as the race for the Tourist Trophy, and that the allowance of fuel for the steam cars shall be the same as the allowance of fuel for the petrol cars, but that the course for the steam cars shall be 137½ miles long, as compared with the course for the petrol cars of 208½ miles long.

The steam cars would have lots of sport one against the other, and there would be no danger of the public being misled into believing that in an efficiency race the steam car can win a Trophy from a petrol car.

I am, Sir,

120, St. James Court, S.W.
November 10th.

Yours obediently,
C. JOHNSON.

SPECIAL ROADS FOR MOTOR CARS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I see a lot of nonsense has been written about the building of special roads, and now I hear that a Bill is to be presented to Parliament to permit the construction of a special road, for motor car use solely, between London and Brighton. Of all the silly schemes that have been evolved in connection with motor cars, I think this is the most stupid, and the promoters deserve to burn their fingers over it. At the present time there is sufficient agitation against cars, and the proposal to construct special roads is only giving the other side a substantiation of their opinion that motor cars are not safe on ordinary roads, and that they should be limited to roads specially built for them, which would deprive motoring of its utility, and of nearly all its pleasure. What, I ask, would be the pleasure of driving along a road, which would be as straight as possible, and without a gradient worth calling such? It will merely devolve into a scorching track, and, in all probability, will be so badly handled that the authorities will be called in to control it. I only hope that the Automobile Club will do its best to oppose the Bill, if it gets to that stage.

Yours faithfully,

Coventry, November 10th. ERIC W. WALFORD.

6-CYLINDER ENGINES.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I have read with great interest Mr. Edge's arguments in favour of 6 as against 4-cylinder engines, and I must say that I have yet to be convinced that the additional complication of two more cylinders is an advantage.

I readily admit that there are a number of points in favour of the 6-cylinder engine, but at the same time there are a considerable number of disadvantages.

Mr. Edge points out that the fly-wheel on a 4-cylinder engine has to be double the weight of the fly-wheel on a 6-cylinder engine to secure the same smoothness of running. Admitted that this is the case, surely it does not count as a disadvantage, as obviously the extra weight of the two additional cylinders in the 6-cylinder engine is considerably more than the extra weight in the fly-wheel, which would, under Mr. Edge's arguments, be necessary in the 4-cylinder motor.

I also note that it is admitted that the 6-cylinder engine, by reason of the loss of 18 per cent. in wall heat, is less efficient than the 4-cylinder engine. Surely this considerable percentage of loss does not suggest that the 6-cylinder is weight for weight more efficient.

Another point on which some interesting information might be obtained is in regard to petrol consumption. I am informed that the extra amount of fuel consumed is not compensated for in any measure either by power or hill-climbing capabilities, and as, at the present time, we are in England encouraging competitions similar to the Tourist Trophy Race, which are arranged with the sole idea of encouraging the construction of cars to give the best results on the minimum quantity of fuel, it seems somewhat retrograde to advocate a type of engine which is necessarily extravagant.

Again, at the present time, there is an inclination on the part of the buying public that cars should not be made with an abnormal wheelbase; at the same time luxurious carriage bodies are required with wide and roomy side entrance doors, and therefore a certain length behind the dashboard is absolutely necessary. If, in addition to this, the front wheels are carried out a long way in front of the dashboard, which is necessarily the case with a long 6-cylinder engine, a car of abnormal wheelbase is the result, which is not only unwieldy to drive in traffic, but is at the same time difficult to handle on narrow roads and round corners.

One has only to see the lengthy bonnets fitted to 6-cylinder motors to appreciate this point, and I cannot help but think that eventually users of cars will put this forward as a serious disadvantage when the merits of the two types are seriously considered.

In regard to silence and flexibility, there are 4-cylinder motors which will stand comparison with the finest 6-cylinder engine yet made on both of these points, and, while mentioning this matter, I would suggest that the fact that a 6-cylinder car has been able to achieve something just over 20 miles an hour at a 1,000 revolutions per minute does not make such a car more practical in the hands of an ordinary user than a 4-cylinder car of the same horse-power geared to the same ratio.

Yours faithfully,

November 13th.

CHAS. JARROTT

SPRING WHEELS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Just now the automobile Press and the general Press seem to be pretty busy publishing accounts of new spring wheels, and, judging from the newspaper accounts, it would appear that the pneumatic tyre is doomed. Now let us take an example of the usual spring wheel, and consider what really happens in the case of the driving-wheels—the tyre being solid, mounted on a steel rim with the springs between the rim and the hub. If, say, the car goes over a two-inch high obstacle and the spring wheel absorbs all this, then the distance between the hub and driving surface is two inches less, that is equal to a wheel four inches less in diameter. So, that is to say, when the spring wheel is in use, it is constantly altering the gear of the car, which all means loss of power together with the moving parts in the wheel.

The great beauty of the pneumatic tyre is that it glides over all minor obstacles without perceptibly varying the distance between the hub and road surface, the larger variations being taken up by the springs between the axle and car body, this latter case also applies to spring wheels.

So it will be seen that it is immaterial whether the springs are placed between the rim and hub or between the hub and body of car, the latter being the correct place.

47, West Hill,
Wandsworth, S.W.

Yours faithfully,

A. VERDON ROE.

SPEED INDICATORS FOR AUTOMOBILES.— PART VIII.

THE VEEDER TACHOMETER.

THE Veeder Tachometer was one of the earliest speed indicators to be put on the market. In fact, our first description of it appeared so long ago as April 18th, 1903, and yet the apparatus—for which Messrs. Markt and Co. have the English agency—has altered but little, even in detail, since that date.

For automobiles the Veeder Tachometer is an adapted form of a similar instrument which has a far more extended and longer-established utility in the engineering world, as an indicator for showing the speed of engines and machinery shafting. There is no difference in principle between the two models, however, for the modified instrument has merely been constructed in two independent parts, instead of as a complete unit, in order to allow the active

member to be situated close to the road-wheel which drives it, while the dial portion is mounted separately in some convenient position on the dash. Our illustrations show both forms: Figs. 1 and 3 being photographs of the engine tachometer, while Fig. 2 is a sectional line drawing of the apparatus designed for motor cars.

In principle the Veeder Tachometer belongs to the hydraulic type of instrument, for its active member is merely a simple centrifugal pump, while the indicator proper is only a gauge-glass containing the column of liquid thrown up by the rotation of the pump. No actual circulation takes place, because the gauge-glass is too high for the capabilities of the pump, which maintains instead a "head" of liquid, the height of which is proportional to the speed at which the pump is driven.

In the engine tachometer, Fig. 1, the pump is contained in the base of the instrument, whereas, in the automobile model, Fig. 2, it is separate—being connected to the gauge-glass by flexible tubes. The gauge-glass, A, is mounted above a small chamber, B, forming a reservoir, and is supported in position by a framework of which the principal members are the three vertical rods, E, and the bracket, E'. Alongside the glass, A, is a scale, A', calibrated either in miles per hour, or revolutions per minute, as the case may be, and behind this is the overflow pipe, B', which communicates with the top of the gauge-glass by means of the passage, E'. Should, by chance, the speed become abnormal, so that the liquid rises to the top of the glass, A, the tube, B', is then available for returning any overflow direct to the reservoir, B.

The pump, C, is shown on a larger scale in Fig. 3, and its simple construction will be obvious from this view. It is merely a paddle-wheel, C', mounted on a spindle, C², the whole being enclosed in a close-fitting, water-tight case, C, with one end of the spindle, C², which is carried in ball-bearings, projecting out so that it can be driven by a chain sprocket, or pulley.

The liquid contained in the reservoir, B, finds its way through the pipe, B², to the centre of the pump wheel, C', and, as the pump revolves, it is thrown outwards by centrifugal force, and rushes up the pipe, A², which communicates with the gauge-glass, A. As the liquid rises in the gauge-glass, its weight reacts on

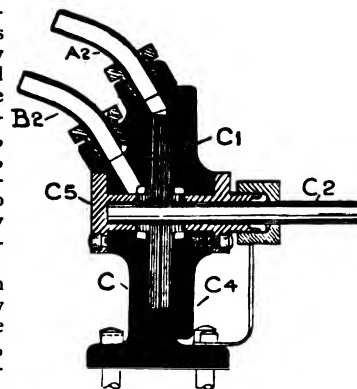


Fig. 2.—The Veeder Tachometer. — Sectional drawing of the motor-car type of indicator, in which the pump mechanism is entirely separate.

Fig. 1.—The Veeder Tachometer.—Views showing the instrument complete. When used for motor cars, the lower part of the instrument, containing the pump, is made separately so that it may be fixed near one of the front road-wheels of the car. The type illustrated is used for indicating the speed of engines and other machinery.

the pump, and when it reaches a certain height—dependent upon the speed at which the pump is being driven—its “head” (i.e., downward pressure due to height) counterbalances the upward lift of the pump, and the liquid then comes to rest.

The “head” of liquid capable of being supported by the pump varies as the square of the speed, consequently the scale is much more open at the top than at the bottom, and its effective range is limited to about one-fourth its maximum.

In all mechanical details, these instruments, which are made in America, are well designed, and most carefully constructed. The pump-spindle runs on ball-bearings, and every convenience is provided for setting, fitting, and testing the indicator before use.

For this purpose there are three cocks on the outside of the reservoir casting. The main valve, D, is a four-way cock, marked with the letters “F. C. T. and W.,” which correspond with its four positions of “Filling,” “Circulating,” “Testing,” and “Working.” In the engine tachometer, Fig. 1, the valve, D, is not a four-way cock but merely a straight-through valve to check the speed whilst running.

In front of the reservoir is a set-screw, D², for making minute adjustments to the zero level, and on the other side is a drain-cock, D¹, for drawing off superfluous fluid. When filling the instrument, liquid (coloured alcohol) is poured in through the top of the tube, B¹, which has a screw cap for the purpose, until it reaches the zero level in the gauge-glass. The level in the reservoir, B, which can be observed through the glass window, B², should

be about $\frac{1}{16}$ inch below the level in the gauge-glass, on account of the capillary attraction in the latter. If the difference is more than this, it indicates that air still remains in the pipes, and this should be expelled by turning the cock, D, to the “circulating” position and driving the pump.

When the zero has been finally set by the use of the fittings, D¹ and D², the valve, D, is turned to its working position and the indicator is ready for use. In the instrument, illustrated in Figs. 1 and 3, the lower edge of the cone, A², indicates the zero level to which the liquid must be set.

By turning the valve, D, to the “circulating” position whilst the pump is running, the liquid in the gauge-glass will be retained in its position indefinitely.

The “zero” can also be tested when the car is running by turning the cock, D, into the “testing” position.

These instruments will, we understand, be exhibited at Olympia on the stall of the United Motor Industries, Limited.

Fig. 3.—The Veeder Tachometer.—View on a larger scale, showing the pump, C¹, in place in the interior of the pump-chamber, C.

Table of Reference Letters for the Veeder Tachometer.

A	Gauge-glass.	C ²	Pump spindle.
A ¹	Scale.	C ³	Driving pulley or sprocket.
A ²	Feed-pipe from pump.	C ⁴	Cover plate on C.
A ³	Cone on lower end of A.	C ⁵	Bearing cap.
B	Reservoir.	D	Main valve.
B ¹	Overflow pipe from A.	D ¹	Drain cock.
B ²	Feed-pipe to pump.	D ²	Adjustment screw.
B ³	Window in B.	E	Columns supporting scale, &c.
C	Pump casting.	E ¹	Bracket on top of E.
C ¹	Pump wheel.	E ²	Overflow passage through E ¹ .

PUBLICATIONS RECEIVED.

Souvenir of the International Tourist Trophy, Isle of Man, 1905. London: The Continental Tyre and Rubber Company, Clerkenwell Road, E.C.

The British International Cup for Motor Boats. Conditions and Rules. London: The Motor Yacht Club, 119, Piccadilly.

The Year's Automobile Sport, 1905. London: The Michelin Tyre Company, Limited, 49-50, Sussex Place, South Kensington.

The Auto Era. Ohio: The Winton Motor Carriage Company, Cleveland.

Hints and Advice for Owners of Panhard Cars. London: Harvey Du Cros, 14, Regent Street, S.W.

Auto Fun. Pictures and Comments from "Life." London: G. Harrap and Co., 15, York Street, Covent Garden. Price 5s. nett.

Catalogues.

List of Engineering Instruments. Glasgow: Whyte, Thomson and Co., 144, Broomielaw.

Let the Judges Decide. The Motor Car Company (1905), Limited, 168, Shaftesbury Avenue, W.

Horbicks, 1906. Manchester: Horsfall and Bickham, Pendleton. *1906 Brotherhood Cars.* Brotherhood-Crocker Motors, Limited, 19, Hanover Square, W.

"The Coventry" Chains for Automobiles. Coventry: Coventry Chain Company, Limited, Dale Street.

The New 24-h.p. Morgan Chassis. Morgan and Co., Limited, 10, Old Bond Street, W.

Motors and Motor Boats. Glasgow: C. L'Estrange Ewen, 45, Hope Street.

Humber Cars, 1906. Beeston and Coventry: Messrs. Humber, Limited.

Star Cars. Wolverhampton: The Star Engineering Company.

Albion Motor Car Company, Limited. Glasgow: South Street, Scotstoun. 1906.

Ariel Cycles and Motor Cycles, 1906. Birmingham: The Ariel Cycle Company, Limited.

MESSRS. S. SMITH AND SON, of the Strand, who have done so much for the production of accurate speedometers, are very naturally gratified with the splendid testimonial that has been provided to the accuracy of their chronometer work by Captain Scott's explorations on the Antarctic Continent. It appears that his ability to determine his position on the great plain or plateau of the interior entirely depended upon the accuracy of one of Smith's timekeepers, with which he was provided. It is a remarkable circumstance and a caustic commentary on “justices' justice” that accurate scientific instruments of the speedometer type constructed by a firm thus renowned for accurate workmanship are treated with the most supreme disdain by magistrates of the “Handover” class when the speeds they indicate are in conflict with the interested statements made by police constables.

RACES, RECORDS, AND TRIALS.

On Saturday, September 16th, the motorists and cyclists of Christchurch, New Zealand, organised a monster run by way of emphasising their demand for better roads. Over 2,500 took part in the procession, the destination of the run being the Metropolitan Trotting Grounds, where the event was made the occasion for an interesting motor gymkhana. In our photographs above, which are from the "Canterbury Times" (N.Z.), the picture on the left is that of Mrs. G. Sutherland, on her Wolseley car, who was winner of the ladies' driving competition at the gymkhana. The right-hand picture shows an interesting contest in the programme, arranged between a motorist and a cab-driver, for testing the stopping capabilities of the two vehicles while travelling at a smart pace. Needless to say the motorist won easily.

4,000 Miles Tyre Trials.—The full regulations of these trials, which are being organised by the A.C.G.B.I., have now been issued. The objects of the trials are to test the durability of standard types of tyres, taken from stock by the club, and their ability to run long distances without involuntary stops, and to ascertain and record their behaviour and the time occupied in replacements or adjustments. The trials are to be carried out as far as possible under ordinary touring conditions, and the competing tyres are to be fitted to ordinary touring cars as sold to the public, each entrant providing suitable cars for the purpose. The club reserves to itself the right to refuse or return any entry without giving a reason, and the trials will not be held unless a minimum of five sets of tyres are entered on or before January 3rd, 1906. The fees chargeable will vary according to the number of sets of tyres entered, as follows:—

5 to 10 sets	Fee £100 per set of tyres.
10 to 15 "	" £75 per set of tyres.
15 to 20 "	" £60 per set of tyres.
20 to 30 "	" £55 per set of tyres.
Above 30 sets	" £50 per set of tyres.

There are 9 classes, as follows:—

PNEUMATIC TYRES.

	Minimum Total Running Weight.	Passengers.
Class A. Light cars	1,500 lbs.	2
" B. Medium cars	2,400 "	4
" C. Touring cars	3,000 "	4
" D. Heavy cars	4,500 "	4

No tyres in these classes may be fitted with any device which protects the tyre from wear. A set of tyres in these classes means 4 tubeless pneumatic tyres or 4 outer covers and 4 inner tubes.

ARMoured PNEUMATIC TYRES.

Class E.	3,000 lbs.	4
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This class is limited to a combination of tyre and armoured protective device, and a set of tyres in this class means 4 inner tubes and 4 covers, each with protective device.

SOLID RUBBER TYRES.

Class F. Light vehicles	1,500 lbs.	2
" G. Medium vehicles	3,000 "	2
" H. Delivery vans, &c.	6,000 "	2
" I. Heavy vehicles... ..	14,000 "	2

In these classes a set of tyres means 4 solid rubber tyres, or 6, if double tyres be used on the back wheels.

No form of spring road-wheels may be used in these trials in any of the classes. Competitors will be permitted to use additional tyres, covers, inner tubes, or protective devices, if selected before the trials and marked by the club, provided such parts as are replaced are handed over to the club as being worn out. The tyres will be under the control and observation of the club throughout. Competitors may at any time terminate the trial or any particular entered set, but must state the reason of withdrawal. Upon the withdrawal or failure of any set of tyres they shall be removed from the wheels, if required, in order to satisfy the observer as to the actual cause of failure.

The air pressure of pneumatic tyres will be tested at the discretion of the club, and tyres must only be run at a pressure not exceeding that declared by the entrant when entering.

The trials will commence on February 1st next in or near London, and will be over a distance of 4,000 miles, but if, at the conclusion of this distance, any competitor desires to continue the trials for his tyres, he may arrange to do so at a fee of £2 per set of tyres per day. Two hundred miles per day will be the maximum run, and each day's run must be completed within a period of 36 hours, or the tyres will be deemed to have been withdrawn. This time limit, however, does not apply to delays caused by failures other than tyre failures. As far as possible, the main roads will be followed, and if the whole route for the day is not completed on the day by any car, it must be completed over the same route on the following day. Speed will be carefully regulated, especially in towns and villages. All involuntary stoppages caused by failure of any part of the tyres, or for adjustment or repair of the tyres, will be recorded, voluntary stops authorised by the Observer not being noted. Engines may be stopped while running downhill or during stops. Adjustments and repairs may only be carried out by the driver and mechanic, both of whom may be changed by consent of the Observer.

The award offered in each class for the set of tyres making the most meritorious performance is the Club's Gold Medal, and for the second best a Silver Medal.

In making the awards, the size, weight and price of the tyres in relation to the weight carried will be taken into consideration. Each competitor will receive a certificate of performance, and a Special Trophy will be given in Class D, if the performance of any one set of tyres is considered sufficiently meritorious.

The Tourist Trophy.—In regard to the proposal to make a special award to cars of entirely British manufacture which took part in the Tourist Trophy Race, as several queries have arisen as to the action of the Club Races Committee in this matter, possibly it has been forgotten that as long ago as March last a resolution was passed by the Club Committee that such an award should be made, the conditions being that the cars should comply with the Gordon-Bennett rules so far as the country of origin was concerned. The handling of the matter was at the same time referred to the Races Committee to consider to which car or cars such awards should be given, and they are, therefore, now only following out the terms of this resolution, which was published about the date of its being passed, viz., March 6th.

Middleton's Pneumatic Hub—A 4,000 Miles Reliability Trial under the auspices of the Automobile Club started on Tuesday morning last, the 21st inst., for the purpose of testing the merit of the Middleton Pneumatic Hub, which was described in our last issue. The car to be used in the test is an 18-22-h.p. Rochet-Schneider.

American Economy Test.—In connection with the economy test, held under the auspices of the New York Motor Club, of which we gave the outline some time ago, particulars are now to hand of the results. Nine cars started over the prescribed distance of 700 miles. Of these, 7 finished, the 16-h.p. Reo omnibus, carrying 10 passengers, winning the trial, and an 8-h.p run-about of the same make coming in second. The winning car carried its passengers the full distance at under 12s. per head. By way of comparison, the railway fare for this distance would have been £2 18s. per head. The competing vehicle showing the least economy of the seven classed cars, shows a cost per head of about 18s. Fuel and lubricants used during the run, adjustments and repairs made to the machine, in addition to ferry tolls, were included in the total costs. In this respect, the Reo 'bus was charged for mechanical troubles about 19s. A protest was entered against the winner upon the ground that the passengers dismounted and walked up a hill on the Albany Road. This, however, was held not to affect the position, a charge having been made against the vehicle of 2½ dollars for the walking episode. The following table gives the results in tabular form of the cars which finished:—

Place.	Car.	Passengers.	Cost.				
			Gasoline.	Oil.	Total.	Per Pas.	Per Mile.
	h.p.		\$	\$	\$	\$	\$
1	16 Reo 'bus...	10	16.00	3.38½	29.30	2.93	.42½
2	8 Reo	4	7.99½	.25½	13.54	3.38½	.49½
3	15 Compound	5	10.87½	2.12	18.62½	3.72½	.54½
4	20 Wayne ...	5	12.40½	2.10	19.81½	3.96½	.58
5	8 Olds	4	10.35½	.42	15.86	3.96½	.58
6	15 Compound	4	10.34½	2.13	17.18½	4.29½	.62½
7	20 Marmon ...	5	14.82½	1.140	22.91½	4.58½	.67½

Flying Kilometre Record.—In respect to the note which we gave last week regarding Dufaux's time for the flying kilometre at Ostend, we stated that unofficially Baras had been timed with 21½s.—world's record time—in 1904 over the distance. Messrs. A. Darracq and Company write us, in regard to this statement, that Baras' record on his Darracq car was timed by the official time-keepers of the A.C. de France, and that the record has been recognised generally throughout the world as tying with that made by Clifford Earp on a Napier racer this year at Blackpool. This is perfectly correct, but, at the same time, we also understand that, magnificent performance as that of Baras was—a performance which no red-tapeism or officialdom can do away with—that when the time was recorded, unfortunately the Ostend Road was not officially classed by the A.C. de France as a road on which attempts on the world's records for speed could be made. Later it was laid down by the Club that if Baras desired to have the time entered officially upon the Club record, he must make two runs, one each way, the average time being then recorded. This unfortunately has not yet been done, and although his record time of 21½s. was absolutely authenticated in 1904 by official timers, the A.C. de France have not so far, we believe, placed the record on their books.

Florio Cup.—For 1906, some modifications are announced in the rules for this race in Italy. Entry of cars of any one make is to be limited to four, to include one reserved for entry by a private owner. The circuit will probably be shortened so as to avoid as far as possible railway level crossings.

M. TAMPIER, the well-known official timekeeper of the A.C. de France, has now officially retired from his post. His resignation was received with much regret last week by the French Club, and a formal communication of regret has been made to M. Tampier by the Club.

Kiel Regatta.—The motor boat events during the Kiel Regatta next year are announced to take place on June 28th and 29th. On the first day the races at Kiel will be held, and on the second the long-distance run from Kiel to Travemünde.

THE Mediterranean Cup for motor boats is to be again run for in 1906, the points being from between Toulon and Palermo.

English Cars for the Continent.—We understand from Mr. S. F. Edge that he has just fixed up a contract with M. Fournier to supply £59,400 worth of 6-cylinder Napier cars for the French market. M. Fournier—who has now been joined by Baron de Caters—represents the Palais Automobile, one of the most important automobile centres in Paris, so it is exceptionally good news that a start, right in the centre of the rivals' camp, should be about to be made under such auspicious circumstances.

It has not hitherto been public property that another contract of considerable magnitude has been arranged for Italy with a company which has already been formed there.

The Police and the Automobile Association "Scouts."—The police seem to be sharing our view that to proceed against the scouts of the Automobile Association (who are, after all, only endeavouring to prevent breaches of the law) for obstructing the police in the discharge of their duty, is not only indefensible legally, but likely to make the police themselves look even more absurd than the pigstyes and "umbrageous thickets" of the Ripley Road have succeeded in doing. So one of them has been charged with perjury by the police manning the trap which he "scouted" on the Fairmile near Cobham, and Superintendent Marks and some of his men gave evidence against him before the Kingston-on-Thames Bench on Saturday last, which resulted in his being committed for trial at the Guildford Assizes. The unfortunate "scout" in question was arrested on a warrant on Saturday, and not allowed to communicate with his friends till the Monday, nor was he brought before a magistrate so that he could have been admitted to bail, by which means the police succeeded in at any rate imprisoning him effectively for two days. The police deny that they were actuated by malice in the matter, but if it had been any other sort of case does anyone suppose that they would have arrested a man, whose address and whereabouts were well known, on a bailable offence, at a time and under circumstances when there was practically no possibility for his being bailed out? Under the circumstances they may deny malice, we think, as much as they like. That they do not feel their position a proud one is shown by a snapshot, which we reproduce above, of two of the police officials who gave evidence in regard to the alleged perjury. One of them, it is true, is laughing as if he thought the whole thing a good joke, but the other, observing the photographer, has raised his polically mantle so as effectively to obscure his countenance. He, at any rate, was not going to have his physiognomy permanently associated with tactics of this kind—small blame to him for that same.

Andover Redivivus.—We hear from the Automobile Association that the police-traps on the Andover Road are by no means abandoned, as we had been previously led to suppose. On the contrary, the trap three miles on the London side of Andover at Fox's Farm, and the other equally notorious arrangement of the same kind nine miles further on, were in full working order on Saturday last. The scouts of the Automobile Association, however, performed their duties most efficiently, and we believe the police quite failed to make a bag. The recent utterances, therefore, of the local police must be regarded as an artful attempt at laying of false scent for the Association scouts—the police evidently not wishing to share with others the credit of preventing law-breaking.

THE Founder Members' Dinner of the Automobile Club is announced to take place on December 6th at the club.

Hyde Park and Automobiles.—His Majesty's First Commissioner of Works, has notified his intention that next summer the restrictions imposed in regard to the admission of automobiles to Hyde Park will be rescinded as far as electric vehicles are concerned. It will be remembered that the point was brought before Lord Windsor and Lord Balcarras last year and that they then refused to make an exception in favour of the electromobile, owing to the difficulty of distinguishing them from some petrol-driven carriages.

The Police and the Automobile Association's "Scouts."—A snap-shot of two of the "police-trappers" who are witnesses in the case of alleged perjury at Kingston-on-Thames against "Scout" Jones, who has helped the police so much in preventing motorists from inadvertently exceeding the speed limit. The style of standing up to the camera of the second constable is probably a reflection of the habit of being concealed in hedges and pigstyes.

Royal Commission on Motor Cars.—The new witnesses who have given evidence before the Royal Commission since our last issue, include the following:—Mr. S. Stallard, Clerk to the Warmley Rural District Council; Mr. Seymour Williams, County Surveyor of Oxfordshire, representing the Rural District Councils' Association; Mr. Kidner and Mr. Biddell, representing the Central Chamber of Agriculture; Sir William Chance, Bart., Chairman of the Guildford Bench; the Hon. Sir Schomberg M'Donnell, K.C.B., Secretary of His Majesty's Office of Works; Major-General Benson, C.B., Director of Transport and Remounts, and Major F. Lindsay Lloyd, R.E., representing the War Office; Lord Montagu of Beaulieu; Mr. J. A. Bean, County Surveyor of Northumberland; Colonel Crompton, C.B., and Mr. E. S. Smith, representing the Motor Van and Wagon Users' Association; Mr. Breathwaite and Major Creagh, representing the Elstree Parish Council; Mr. H. P. Maybury, Kent County Surveyor.

VERY enjoyable was the excellent banquet at Prince's Restaurant, last week, which the Daimler Company gave to a few representatives of the Press. Sir Edward Jenkinson, the Chairman of the Company, presided. The after-dinner remarks were, in the main, of quite an unorthodox character, amusing tales without number being a feature of the evening, these being largely contributed by Mr. Charles E. Hands, Mr. Frederic Coleman, Mr. Massac Buist, and a few others.

The loyal toasts disposed of, Sir Edward Jenkinson gave the toast of the evening, "Our Guests," and maintained that by the use of experts and the adoption of scientific and up-to-date methods nothing was to be feared by English manufacturers from foreign competition. The results of this policy he had earlier in the week had the pleasure of explaining to the shareholders in his Company when the very splendid balance-sheet which had been produced was welcomed by the shareholders and all interested in the automobile industry. Conservative and insular self-satisfaction with old

CLUBS AND ASSOCIATIONS.

The British Empire Motor Trades Alliance.—The following firms have been elected to membership:—Dean and Burden Brothers, Limited, Salisbury; Lanchester Motor Company, Limited, Birmingham. Associate membership:—Avon India-rubber Company, Limited, Melksham; Electric Ignition Company, Limited, Birmingham; Hooper and Co., Limited, London.

Ladies' A.C.—It is pleasing to see that the Ladies' Automobile Club are recognising the importance to lady automobilists of being thoroughly acquainted with all the details of their cars from an engineering point of view, and the greatest interest has been shown by the members in the practical lectures on the working parts and engineering terms of cars which are now being given at the Club. The course of lectures deals with such practical matters as the history of radiators, pumps and silencers, accompanied by practical demonstrations with the latest types of engines, and the fair automobilists give the very greatest attention to making themselves thoroughly conversant with the working of the various parts. We have always insisted upon a practical knowledge being essential for everyone who desires to be an effective car driver, and the extent to which the ladies of the Ladies' Automobile Club are realising the situation is a further demonstration, if any were needed, of the truth

The above photographs giving some interesting views in Queensland have been sent us by MR. FRANK W. INSTONE, who has, during the past twelve months, been in Australia in connection with automobile business and has travelled and examined long distances of the roads in the interior. In various districts the roads he reports to be good, on the average, but in more remote parts of the country they are quite unsuitable for motors, but Mr. Instone is confident there is a big future for cars in the Colony and that suitable motor boats promise an enormous field for business. In our central picture, Mr. Instone is seen on a "hippomobile" on which he did some of his prospecting. On the left, a 32-bullock team is shown drawing timber, this scene giving an idea what automobiles have to replace in Queensland. In the photo on the right, Mr. Instone is skirting a mangrove swamp.

methods he thought was the main trouble in most cases of non-success in this country. All the protection in the world would not make the public buy bad goods.

Mr. Percy Martin, the engineer responsible for the high-class work turned out by the Daimler Company, gave a practical and instructive speech upon industrial tendencies in the automobile world, which was received with considerable appreciation. Mr. Martin proved himself to be a very strong advocate of the principle that it was better to sell 1,000 cars cheaply than 500 at a higher price, as every good car that was put on the road became an advertisement, and therefore the larger the number, the more friends were made.

THE Caledonian and London and North-Western Railways have inaugurated a new express goods service between Glasgow and London, as a result, it has been stated, of the recent record run in conveying a consignment of Argyll cars for Argylls, London, Limited. The journey is now being accomplished in ten hours.

that the automobile movement is producing a widely-educative effect.

Leicestershire A.C.—The headquarters of this club are now at the Grand Hotel, Granby Street, Leicester.

Motor Yacht Club.—The club has obtained the charter of the late Admiralty yacht "Enchantress," which will be used by them for the purpose of a floating club-house on Southampton Water. This roomy vessel is eminently suitable for the purpose, as she is already fitted with a large number of state rooms and ample saloon accommodation.

Sheffield A.C.—A special general meeting is being held on Monday next of members of the club, to consider the question of holding a motor car show in Sheffield, and for the presentation of challenge cups and medals won in the hill-climbing competitions.

MR. J. A. MACKLE read a paper on "Air Cooling for Petrol Motors," at the opening meeting of the second sessions of the University of Liverpool Motor Club last week.

AT Plymouth, the South Devon Automobile Club was formed last week.

The car selected for the use of the Prince and Princess of Wales during their visit to Ceylon, is the 24-h.p. Panhard-Levassor Touring Car of Mr. Charles Wertheimer, which is shown in our photograph.

EXCELLENT as the Clement car has always been found for touring purposes in this country, it has been felt by Mr. E. H. Lancaster, who handles this vehicle in Great Britain, that the building of the car in its entirety should be under the control of the Company. In the past this has been the position, with the exception of the engine, but now arrangements have been concluded whereby the Vinot Engine Company have been amalgamated with the manufacturers of the Clement car, and the combination will be known for the future as the Clement Motor Company, Ltd., the control of which will still be in the hands of Mr. E. H. Lancaster, as managing director. The Vinot engine will, therefore, be fitted to all the 1906 Clement cars. This important and interesting information was given at a very pleasant little social gathering on Monday of this week, at which Mr. E. H. Lancaster had brought together his agents throughout the country so that they might in friendly consultation discuss the various points which they each and severally thought might conduce still further to perfecting and adding to the success already achieved with this type of vehicle. As heretofore, Mr. Lancaster will continue to visit the works in France at Pres St. Gervais at least once a month, by which means he is able to watch the progress of the improvements as they are introduced, and make suggestions specially applicable for the British market. As an earnest of the increased business which is coming forward for next year, already 56 Clement cars have been booked up, we learn, and the whole of the agents assembled on Monday evening expressed themselves more than delighted with the prospects in their various districts.

PAPERS to be read at the Automobile Club are announced as follows:—November 30th, "Morals from Olympia," by Mr. Filson Young; December 7th, "Results of Experiments Made During the Year by the Dust Committee," by Mr. W. B. Cooper. This paper will be accompanied by animated photographs lent by Mr. Wellington, of the British Automobile Commercial Syndicate.

ON Wednesday of last week a remarkable transformation was witnessed in the underground

repair shop at the Holborn Viaduct premises of the Winton Motor Carriage Company, when this large room was unrecognisable through the striking change which had been effected by means of draperies, carpets and ornaments. The occasion was the visit to England of Mr. Alexander Winton, the founder of the firm, a number of friends and members of the Press being invited to welcome Mr. Winton to London. The two toasts were "The King," proposed by Mr. Winton, and "All and Sundry," by Mr. Duck, the indefatigable London manager.

Mr. Winton proved himself to be particularly modest in regard to his own affairs, although he was justly proud of the manner in which he had built up the huge business of the Winton Motor Company in America, from the very smallest of beginnings. He told his guests of how he originally hired a bench at a dollar a week in a small shop, and later joined in partnership with his brother-in-law, who was the possessor of a blacksmith's shop. First starting cycle making, they ultimately turned out about 6,000 machines per annum. When cars came forward he started cautiously by building one vehicle, which he ran for about a year. He was then enabled to build half a dozen others, and ultimately brought the factory up to its present remarkable position of supplying an output of six and seven machines a day, whilst the extensions which have just been made provide for

A Novel Motor Hansom.—One of the new Cabs which are being built by the Vauxhall Co. for the Metropolitan Motor Cab Co. Except for the steering-gear and control-levers, the chassis is the standard 14-h.p. three-cylinder model, which is usually supplied as a touring car. Passengers obtain an unobstructed view by the relegation of the driver to the rear, but whether the driver himself will appreciate his elevated position, now that a steering-wheel replaces the ribbons, remains to be seen.

about twelve cars a day to be completed in the coming year. One of the special features on the Winton car is the pneumatic governor, and Mr. Winton, in mentioning this item, which he has been able to bring to a commercial state of efficiency, said he "stumbled on the pneumatic governor" in the early days of his experiences.

Premiums for Careful Drivers.—A good driver, it is generally admitted, can obtain fair results out of a poor car, but in combination with a first-class car he should get results approaching perfection. *Per contra*, a bad and careless mechanic can speedily ruin the finest car ever constructed, and no skill on the part of the manufacturers can counteract the effect of neglect or ignorance on the part of the man responsible for the driving of the car. Messrs. Chas. Jarrott and Letts are desirous of bringing this home to owners and drivers alike in connection with the De Dietrich cars, which they market in this country, and have determined to make the following special offer as an inducement to paid drivers to exercise the maximum of care in regard to this particular make of car. The offer is a payment of £100 under the following conditions:—

£50 to be presented to the paid driver looking after, or responsible for, the up-keep of any De Dietrich car either of the 1902, 1903, 1904, or 1905 types; and

£50 will be presented to the paid driver looking after, or responsible for, any De Dietrich car of the 1906 type.

The following are the accompanying conditions:—

An accurate detailed record must be kept for six consecutive months of all repairs and renewals to the car, excluding petrol and lubricating oil, which is not taken into account. A record must also be kept of the actual distance traversed during the six months.

These records must be signed by the owner of the car before being sent in, and in the case of the winner be verified by a statutory declaration made both by the paid driver and the owner.

The two drivers sending in the best records, *i.e.*, the records showing the smallest expenditure in up-keep per running mile, will secure the cheques for £50 each. The records must not date before the 1st of January, 1906, and any consecutive six months' record made between that date and the 1st of November, 1906, is eligible, but every record must be sent in not later than the 2nd of November, 1906. It is specially pointed out that only petrol and lubricating oil is excepted, that expenditure in tyres counts against the driver, and that the distance travelled is taken into consideration in his favour.

Owners of De Dietrich cars, it is hoped by this scheme, may appreciate these efforts to induce drivers to study their employer's interests, and induce them to keep a record, so as to qualify for the competition.

All records must set out dates, distances travelled and places, date and cost of each renewal or repair.

SOME country districts are recognising the importance of the motor wagon, and on Lord Scarborough's estate the tenants are reported to be organising a co-operative motor wagon service for running to market centres.

COMMERCIAL POINTS.

THE large number of visitors in town this week end for the Olympia Show was most marked, and many small motor parties were made to take advantage of the fine weather of Sunday. A very successful run was carried out by the Humber Company for some of their agents who were compelled to spend the week end in London. Leaving the First Avenue Hotel at a quarter past nine, Mr. T. C. Pullinger, the Beeston Works manager of the company, piloted a string of cars to the Brighton Road, and London-by-the-Sea was made in excellent time. After lunch at the Royal York, the return journey began at four o'clock, and the whole of the cars arrived back at the First Avenue Hotel together in procession, not the slightest hitch having arisen on either journey.

Amongst those who accepted the Humber invitation were Messrs. C. Ace, of Tenby; R. M. Wright, of Lincoln; J. V. Madgwick, of Bolton; I. S. Willway, of Bristol; H. J. Croft, of Kendal; R. Julian, of Reading; T. Garner, of Derby; J. Webb, of Monmouth; J. Fryer, of Kingston; A. Bell, of Manchester; K. Henderson, and I. Robinson. All these gentlemen are thoroughly experienced and expert, and expressed themselves highly delighted with the running of the Beeston Humber. One and all were highly delighted with their day's experience with the cars with which they are concerned.

A LARGE number of automobilists from the provinces will, of course, be in London during the present week, and Messrs. Argylls, London, Limited, of 17, Newman Street, Oxford Street, who are the London agents for the well known Argyll cars, point out that any automobilist visiting London who fails to pay their showrooms a visit will be neglecting an opportunity of seeing the most up-to-date arrangements which have yet been provided for the benefit of the motoring public. One of the great advantages which the Argyll Company provide for their customers is that any purchaser can obtain a car direct from stock, and practically take it away with him, an advantage which those who have had to suffer from two and three months' delay in delivery will fully appreciate. A feature of the Argyll showrooms is that in addition to the provision of automobiles, special stalls are provided at which up-to-date motor clothing can be purchased across the counter.

THE Continental Tyre and Rubber Company have brought out a small memento of the Tourist Trophy in the Isle of Man, at which the tyres of the Company so markedly distinguished themselves. It consists of a pamphlet showing a number of views of the course and a number of the cars which were shod with Continental tyres, a notable illustration being one of the Continental Tyre depots on the course.

There is no ending to the varied purposes to which the motor vehicle is now being brought into use. The above is one of the latest examples in the form of a 3-ton Orion garbage wagon, which has been built to the order of the Cairo Sewage Transport Company, Limited. It has a 20-h.p. engine, has steel wheels and rubber tyres, and all the parts are well covered in to protect them from the dust of Egypt.

Motor Boat Insurance.—An entirely new departure has been made by the Car and General Insurance Corporation for insuring motor vessels driven by fuel vapour. Although such business strictly comes under the heading of Marine Insurance, they have not the intention of undertaking marine business as generally understood.

The motoring public have, however, been giving, during the past two years, serious attention to motor boats, with the result that the construction of such vessels has become an important division of petrol motor industry. It has, therefore, been deemed an opportune moment to issue a special insurance proposal form for covering this class of risk, and a very full prospectus is to hand setting out the many advantages which the company offer to motor boat owners at moderate premiums. That the company, under the general management of Mr. F. Thoresby, are competent to deal with this side of the business, is self-evident from the fact that the chairman, Mr. E. Manville, and one of the directors, Mr. J. M. Gorham, are keenly interested, as directors of the Daimler Motor Car Company, in the construction of motor boats. Another director, Mr. R. Ward, is a director of the London and Provincial Marine Insurance Company. The company's solicitor, Mr. P. Marr Johnson (of Messrs. Clutton and Johnson), is a director of Saunders, of Cowes, one of the leading yacht builders in the world, and finally, the board will have the practical assistance of Messrs. Linton Hope and Co., A.I.N.A., as consulting naval architects, Mr. Linton Hope being one of the pioneers in designing petrol motor vessels, and the secretary of the Marine Motor Association, the governing body of such craft.

A Humber Excursion.—As showing the intense interest taken in the Stanley and Olympia Shows by all classes of the trade, it is worth noting that at seven o'clock last Saturday morning a special excursion left Coventry carrying over a thousand employees and friends of Messrs. Humber, Limited. The Humber Company closed its works for the day to allow its workpeople to come up to the Shows. The two huge exhibits of the company, at stands 130 and 18 (Minor Hall), at the Agricultural Hall were the centre of keen interest to the workpeople who have assisted in the manufacture of the cycles and cars exhibited there.

Mr. E. H. LANCASTER informs us that his Mr. Mosses has returned from a business tour through the counties, covering 2,000 miles. Mr. Lancaster states that the 1906 Clement Model used so impressed his agents that large contracts for next year's cars are already to hand. Early deliveries for next year are exceedingly good.

MESSRS. C. S. ROLLS AND CO. advise us that owing to the success of their Rolls-Royce cars, the factory is to be considerably extended, and they have resolved to confine themselves entirely for the future to the sale and manufacture of this now successfully launched British product. In regard to the Minerva cars with which the firm were dealing, they have made arrangements with Minerva Motors, Limited, for the orders already received for the 1906 Minerva cars to be supplied direct by Minerva Motors, Limited.

MESSRS. GAUTHIER AND CO., owing to the large increase in their business, have moved into considerably larger premises, their address for the future being 60, Great Marlborough Street (Poland Street Corner), Regent Street, W. The firm will continue as before, to be the sole representatives of the following French firms:—Malicet and Blin, chassis and component parts; Bassée and Michel, magnetos, coils, ignition apparatus; Ballot Frères, 2 to 4-cylinder engines; Louis Dubrulle, lubricators; Ossant Frères, silencers for automobiles and motor boats; Usine Partinium, metallic castings.



COMPANY DOINGS.

A. Darracq and Co., Limited.—Mr. J. S. Smith-Winby, the chairman of the company, presided over the third annual meeting of this company last week, when he had a very agreeable task in submitting the splendid result of the past financial year's working to the shareholders. He was able to state that the company had made a record advance in the amount of its business for the season of 1905, a record which it must be their endeavour to surpass in the year to come. The principal reason for this great success was the progressive policy of those in charge of the company's affairs, and the determination to continue to increase the capacity of the output of the works. The justification of this policy was found in the

figures which were submitted in the accounts. In spite of the competition, which had increased during the last two years, the Darracq Company's position was unquestionably stronger to-day than at any previous period of their business. In regard to consolidating their position generally, they had acquired the freehold of a portion of their factory at Suresnes and also extensive land adjoining. In addition extensive premises at Lambeth had been purchased, where they intended having facilities for examining, adjusting, and stocking a large number of cars in readiness for immediate delivery. They were also establishing there an effective repairing shop and giving other facilities which would conduce to the efficiency of the whole business. Although they had made such splendid profits, the additions to the works and plant at Suresnes would not really make themselves felt until the season, which was now coming on, so that they might look forward to a further increase of output in 1906.

In speaking of the splendid victories which had been achieved by the Company's racing cars, winding up the brilliant season by the winning of the Vanderbilt Cup Race in America, Mr. Smith-Winby paid a very high compliment to the Dunlop tyres. He said that almost at the last moment it was decided to use Dunlops, and they had fully justified their confidence. He took that opportunity of complimenting the Dunlop Company upon their enterprise upon this occasion. Within twenty-four hours of receiving the order they had despatched a full supply of tyres and trained assistance to New York, and the Company felt that no small share of the success that their car achieved in this spirited and severe encounter was due to the Dunlop Company's co-operation.

Dealing with the types of Darracq cars for next season, the chairman said that there would be two new models, one a 2-cylinder 10-h.p. and the other a 20-32-h.p. The latter he described as an enlarged and improved 15-h.p. car, the type which had had such remarkable success during the past year. They proposed to offer this new car at a very slightly higher price than the popular 15-h.p. and they hoped that it would not only equal but would eclipse the 15-h.p. in popularity. They hoped to get back the extra cost of this car by means of their increased output. The whole question of automobile manufacture was one of output. By the exceptional facilities which they possessed, they could offer advantages which smaller manufacturers could not possibly attempt, and it was becoming evident every day that the business was one only suitable for large concerns who could handle big quantities, those attempting to manufacture on a moderate scale being hopelessly handicapped from the outset.

He mentioned that for some months past they had had several specially-designed experimental delivery vans undergoing trials of the severest character. They were carefully studying the whole question of commercial vehicles, and later the company would be in a position to manufacture Darracq motors for light delivery van and commercial use, which would be profitable investments, he hoped, for the company and certainly for the buyers.

Referring to the net profit of £152,663, he dealt with the proposals which the directors recommended for dealing with this, including making up the dividend on the ordinary shares to 20 per cent. for the year, transferring £10,000 to reserve and carrying forward a balance of £27,174. He then referred to the proposals for the reconstitution of the company, which would materially increase the prosperity of the whole concern, and, in conclusion, Mr. Smith Winby asked the shareholders to voice their cordial appreciation of the efforts of those to whom the main credit was due for the results that were then laid before them. Included in this great appreciation was, firstly, their managing director, Mr. Darracq, and his staff at Suresnes, and Mr. Rawlinson, who directed the London office, ably assisted by Mr. Dunn and Mr. Cooke.

Sir W. B. Avery, Bart., who followed, and seconded the adoption of the accounts, said that the one name that the chairman had omitted to mention as having had a great deal to do with the success of their business was his own, and he felt sure that the whole of the shareholders would agree that they could not have a better chairman.

Mr. A. Darracq, who spoke in French, also attributed very largely the flourishing position of the company to the work of the entire board, notably of Mr. Smith Winby, their devoted chairman, and to Mr. Rawlinson, whose initiative and brilliant capabilities, sportive as well as commercial, were worthy of the very highest praise.

The accounts were unanimously adopted, and at an extraordinary general meeting subsequently held the proposals of the directors for the reconstitution of the company were also cordially approved.

THE directors of the London Motor Omnibus Company, Limited, announce an interim dividend at the rate of 10 per cent. per annum on the issued ordinary shares of the company for the six months ending 31st of October last.

NEW COMPANIES REGISTERED.

Arrow Motor Omnibus Company (Limited).—Capital, £100 in £1 shares.

Clement Motor Company (Limited).—Capital, £30,000 in £1 shares. Object, to acquire the business carried on at 3, Leicester Street, W.C.

Durham and District Motor Omnibus Company (Limited).—Capital, £3,000 in £1 shares. First directors, J. T. E. Dickeson, R. McLean, T. Colpitts, jun., J. Craig, J. Rowe, E. Short and W. Dornan.

A. Darracq and Co. (1905) (Limited), 2, Coleman Street, E.C.—Capital, £650,000 in £1 shares (375,000 preferred ordinary and 275,000 ordinary). Object, to acquire the business carried on by A. Darracq and Co., Limited, at Suresnes, France. First directors, J. S. Smith-Winby, Sir William B. Avery, Bart., E. Festus Kelly, J. Malesset, W. Weir, A. Darracq, and A. Rawlinson, being the present directors of A. Darracq and Co., Limited.

Evans Carburettor and Motor Pump Syndicate (Limited).—Capital, £2,000 in £5 shares. Object, to acquire patents for (1) new and improved carburettors and vaporisers; (2) motor pumps; (3) a compound nozzle for blowing compressed air, with a suction principle in combination therewith; (4) a radiator under an agreement with W. C. B. Evans and W. S. Cottrell.

Sharpe's Universal Patents (Limited), 178, Goswell Road, London.—Capital, £1,000 in £1 shares. Object, to take a business of motor engineers. First directors, N. W. H. Sharp and J. Stoddart.

Thames Motor Lighterage and Towage Company (Limited), 6, Crosby Square, E.C.—Capital, £10,000 in £1

shares. Object, to acquire and equip barges, lighters, and other vessels propelled by motive power for the carriage and transhipment of goods on the Thames and Medway.

Toboggan Motors (Limited), Terminus Chambers, Holborn Viaduct, E.C.—Capital, £5,000 in £1 shares. Objects, to acquire the rights in a three-wheeled petrol motor car known as the Toboggan Tri-Car; also a licence to use Tangy's Patent Friction Gear. First directors, H. E. Harrison, R. G. Batchelor, A. C. G. Smith and J. A. Leon.

Vanguard Motor Omnibus Company (Limited).—Capital, £100 in £1 shares.

NEW ISSUES.

A. Darracq and Company (1905) (Limited).—This company has taken over the business of A. Darracq and Company, Limited, of Suresnes, Paris. The share capital is £375,000 in 7 per cent. preferred ordinary shares and £275,000 ordinary shares, both of £1 each, and, in addition, £150,000 in debenture bonds are created, the whole debenture issue being offered at par. The directors are Sir W. B. Avery, Bart., Messrs. J. S. Smith-Winby (chairman), E. F. Kelly, J. Malesset, W. Weir, A. Darracq and A. Rawlinson.

London and South Coast Motor Service Company (Limited).—The prospectus of this company has been issued this week, with a capital of £100,000. The purpose of this company is for the running of public motor vehicles between London and the South Coast, serving en route districts such as Croydon, Woolwich, Redhill, Sevenoaks, Maidstone, Rochester, Canterbury, &c. The directors are Messrs. W. H. Davis, J.P., Thomas Prior, Carleton Roberts, J. W. Palmer and J. W. Cann.



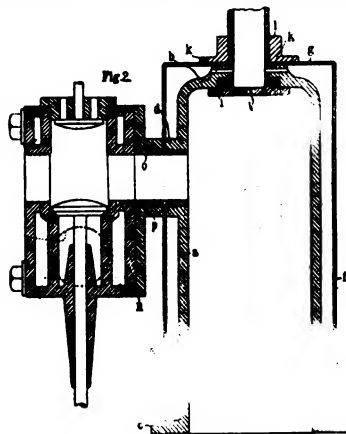
BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

20179. 19th September, 1904. Improvements in Explosion Engines and Jacketing Arrangements therefor. Gustavus Green, 49, Reginald Road, Bexhill-on-Sea, and Joseph Miller, 1, Cantelupe Road, Bexhill-on-Sea. This invention has for its object a construction of the cylinders and valve boxes with their jackets, designed to simplify the manufacture, to increase the efficiency, and where required to reduce the weight of such jacketing devices. There are five figures. Fig. 2 shows the cylinder in section. Each cylinder, *a*, is cast with a projecting head, *b* and *a* flange or foot, *c*. The cylinders also have lugs, *d*, projecting therefrom for the connection of the valve box and collars, *e*, for holding the packing ring between the cylinder and jacket; *f* is the water jacket which may be made from piping or from sheet metal bent to cylindrical

and is made slippery by oil; the jacket, *f*, is then forced downward from above until its head, *g*, rests upon the flat top of the projection, *b*, on the cylinder head, its lower end passing over the packing ring, *m*. The jacket is locked in place by the screwing down of nut, *l*, upon the stem of plug, *h*. The hollow steam of said plug now forms through the passages, *k*, either an inlet or outlet for the cooling water to or from the water jacketed space. The rubber ring, *m*, is under compression against the inner walls of the jacket, *f*, and it not only allows of longitudinal differential expansion between the cylinder and jacket, but also prevents leakage when the cylinder and jacket expand circumferentially. For connecting the separate valve box a plate, *n*, is provided, having a hole therein corresponding to each of the holes in the lugs, *d*, on the cylinders. The jackets,

Internal Combustion Engines. John W. Eisenhuth, 25, Broad Street, New York, U.S.A. This invention relates to internal combustion engines working with gas, vapourised oil or spirit, and has for its object a new engine of the type wherein the gases work on the compounding principle, and four high pressure cylinders discharge into one double-acting or two single acting low pressure cylinders; the improvements consist mainly in the new construction or design of such engines, with the object of producing particularly compact and well-balanced engines. There are thirteen figures. Fig. 1, is a plan view, partly in section of this engine, having four high pressure cylinders and one double-acting low pressure cylinder. The four high pressure cylinders, *a*, *b*, *c*, *d*, and one double-acting low pressure cylinder, *e*, are all mounted in the one framing. The high pressure cylinders have trunk pistons, and the connecting-rods of the trunk pistons of cylinders, *a*, *b*, work upon a single crank on the crank-shaft, *g*. The pistons of cylinders, *c*, *d*, similarly work on a single crank standing at 180 degrees to the first. One of the rods has a forked end in each case, whilst the end of the other rod, *h*, work in the fork. Four rotary valves are provided of similar construction, but those on one side of the engine are preferably inverted as compared with those on the other side. There are two inlets, *n*, leading to carburettors or other sources of supply of combustible mixture. Each valve has a casing, wherein are mounted to turn two rotary sleeve valves. The casing and valves are tapered slightly so that they may be ground in, and the two valves are fixed on a sleeve through which the valve spindle, *s*, passes. The valves may be fixed directly on the spindle. The spindle, *s*, in this case, engages by a feather in the sleeve, and the sleeve is supported at its upper and lower ends in ball-bearings, *t*. By properly adjusting the valves, *p* and *q*, on the sleeve, and setting the bearings, *t*, the two sleeve valves, *p* and *q*, may be made to run over the faces in the valve casing just out of contact with these faces, true facing being ensured by the grinding in. In this way the frictional resistance, which has been the usual objection to the use of rotary valves may be avoided. *u*, is a single port or passage, constantly communicating with the interior of the valve casing from one of the high pressure cylinders. The lower valve part has a slot, adapted to register with a port leading from the inlet, *n*. The upper valve part, *p*, has a division plate or diaphragm, *y*, and two slots, the one below, and the other above the diaphragm respectively. The valves are actuated by the following means:—The crank-shaft, *g*, carries a toothed wheel, *6*, with which gear two idle pinions *7*, driving toothed wheels, *8*, on shafts, *9*, running transversely of the engine frame at each side of the same in brackets. The gearing, *6*, *7*, *8*, is so proportioned that the shafts, *9*, run at half the speed of the crank-shaft. The valve spindles, *s*, are driven from the half speed shafts, *9*, by mitre gearing.—November 1st, 1905.



form and suitably brazed or connected. The metal preferably used is brass or copper. The lower end of the jacket is open; at the upper end it has a cap, *g*, which may be formed by spinning over the metal of the jacket or by attaching a flat cylinder with its hollow stem projecting upwards and its head pressing against a packing ring lodged in a recess in the cylinder head. Holes, *k*, are bored through the stem of the plug, and the projection, *b*, on the cylinder head in order to form passages for the circulation of water; *l* is a nut screwing upon the stem of the plug *h*, and adapted to hold the jacket upon the cylinder; *m* is the packing ring of rubber or the like which forms the free joint between the jacket and the cylinder. In fitting the jacket the packing ring, *m*, is inserted between the collars, *c*,

f, are cut through over each of these lugs, thus leaving passages or ports in free communication with the interior of the cylinders; *o* are screwed plugs, the heads of which lie in recesses in the plate, *n*, the plugs being threaded to engage in internal threads in the lugs, *d*, of the cylinders; *p* are collars preferably of gun-metal shaped to fit between the outer walls of the jackets and the back of the plate, *n*. When the plugs, *o*, are screwed up, the plate, *n*, collars, *p*, jackets, *f*, and cylinders, *a*, are bound tightly together ready for the mounting of the valve box upon the plate, *n*. The jackets, *f*, are pressed to closely against the surfaces of the lugs, *d*, that no leakage is to be feared at this point.—November 1st, 1905.

4884. 8th March, 1905. Improvements in

The Automotor Journal, December 2nd, 1905.

THE AUTOMOTOR JOURNAL

A RECORD AND REVIEW OF APPLIED AUTOMATIC LOCOMOTION.

Circulates amongst Makers and Users of Motor Cars, Cycles, etc., in the United Kingdom, the Colonies, and the Continent.

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DECEMBER 2ND, 1905.

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NOTICE.—Advertisement instructions should reach the office, 44, St. Martin's Lane, W.C., by first post, Wednesday. The latest time for receiving small alterations for Advertisements is 12 noon, Wednesday. No alterations can be made after that hour.

DIARY OF FORTHCOMING EVENTS.

British Events.

1905.	
Dec. 4 ...	"Explosion and Flame in Relation to Motor Car Engines," by Dr. W. R. Ormandy (Manchester A.C.).
Dec. 6, 13 ...	Practical Lessons on Motor Cars (Ladies' A.C.).
Dec. 6 ...	*Founders' Dinner, A.C.G.B.I.
Dec. 7 ...	*Dust Experiments, by Mr. W. Cooper.
1906.	
Jan. 17 ...	Auto-Cycle Club Dinner.
Jan. 19-27 ...	Birmingham Motor Show.
Jan. 26-Feb. 3 ...	Crystal Palace Motor Show.
Feb. 1 ...	*4,000 Miles Tyre Trials.
Feb. ...	*Lamp Trials.
Feb. 9-17 ...	Liverpool Motor Show.
Feb. 9-17 ...	Newcastle Motor Show.
Feb. 23-Mar. 3 ...	Manchester Motor Show.
March 9-17 ...	Glasgow Motor Car Show.
March 24-31 ...	Cordingley and Co.'s Motor Show.
Aug. ...	*Van Trials.

Foreign Events (Trials, Races, &c.).

1905.	
Dec. 3 ...	Coupe de Salon, Paris (Motor Boats).
Dec. 8-24 ...	Paris Automobile Salon.
Dec. 12 ...	A.C. de France Fête.
1906.	
Jan. 13-20 ...	Brussels Exhibition.
Jan. 13-20 ...	American A.C. Show, New York.
Jan. 17-20 ...	Western Indian Trials.
Jan. 22-27 ...	Ormond-Daytona Beach Races.
Jan. 26-30 ...	Calcutta Motor Trials.
Feb. 3-18 ...	Berlin Motor Show.
Feb. 3-18 ...	Turin Automobile Show.
April 1-15 ...	Monaco Motor Boat Exhibition and Races.
April-May ...	Milan Exhibition.
May 5 ...	"Targa" Florio (Sicily).
May 13-14 ...	Tour de France (Motor Cycles and Voiturettes).
June 10-10 ...	Herkomer Cup.
June 28-29 ...	Kiel Motor Boat Races.

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

A British Triumph.

WHEN referring to the previous Automobile Exhibition at Olympia early this year we made use of the word "phenomenal," applying it both to the number of visitors and the large number of orders booked by the exhibitors. We are sorry we made use of that word, for it is one to which it is difficult to devise a comparative. We are accordingly left without a suitable adjective to describe the enormous advance which the Show (which closed its doors last Saturday) has demonstrated as having taken place since last February, both in the British automobile industry and the readiness of the British public to purchase automobiles. Last February the orders booked at the Exhibition represented a large sum. The value of the orders booked for the coming year is estimated by responsible authorities as being fully four millions sterling, and we have reason to believe that the bulk of these orders have gone to British manufacturers. The leading foreign firms have done very well, but British firms have done even better, and the amount of business transacted (for which, as said, an adjective fails us) is such as to fully justify the prophecies uttered in French papers by M. Georges Prade some six months and more ago, as to what the British automobile industry, and the British market for automobiles, would shortly become. There are no more acute buyers than the British purchasing public, and they have never hesitated

to go abroad, if necessary, for what they wanted. That the vast majority of them now are content to purchase at home, as the Exhibition demonstrates that they do, is the most irrefutable proof, if any were needed, of the statement triumphantly made by Mr. Edge and others, that Great Britain has not merely overcome the disabilities and deficiencies due to mistaken and reactionary legislation in the past, but at the present moment is well on her way to actually lead the world in automobilism.

The Attitude of Society.

THE Olympia Exhibition has further brought to light a marked alteration in the attitude of the public at large to the automobile. Certain classes, highly placed socially as a rule, have for long been the protagonists, and as Lord Montagu very properly termed them, the pioneers, in motoring. But what the orders booked and the experience gained at this year's Show prove emphatically is that what was till recently a fashion more or less confined to a relatively small class of society, now appeals to the bulk of the population who have money to become purchasers. It is a tremendous revolution for the automobile to have effected, and the result will be an almost incalculable development in the automobile industry. Considering that at the same time the majority of purchasers are purchasing British-built cars, the subject is one for all round congratulation.

When congratulating themselves, British manufacturers should have the kindest of feelings towards the fair sex. No one could have visited this last Show without being impressed by the enormous effect which the influence of interested ladies exercised in the placing of orders. In fact, but for their influence we feel certain that the colossal number of orders booked this year would have been considerably less enormous than it is. There was evidently an appropriateness in the old legend which almost invariably represented Venus as travelling through the air *in her car*!

A Seasonable Moment.

THE splendid object lesson which the Exhibition has provided of the swiftly growing importance of the British automobile industry is of particular value at the present moment. The sittings of the Royal Commission on the Motor Car Acts are in full swing, and the members have been hearing day by day the views and opinions of representatives of the movement and their opponents. When the sittings are over, the Commission will have to consider in its report what legislative proposals they will make as regards the future. We think they cannot but be advantageously impressed by the figures with which the Exhibition has furnished them. The British automobile movement has been shown by it to have advanced from a very backward position, as compared with other countries, to practically the foremost place, and its importance to everybody concerned, particularly to the British workman, is, as we have pointed out above, enormous. Oppressive measures and illiberal legislation were comprehensible—short-sighted and foolish as they were—in the days when it was doubtful as to what the future of the industry would be. Now that it is clearly shown that it has already become one of the most important staple industries of the country and will vastly increase in importance as time goes on—no industry, in fact, of modern times can point to such a rapid growth—the introduction of legislation which would seriously cripple it would be nothing less

than a national misfortune—particularly a misfortune to the working classes—and could be only regarded by unprejudiced critics as an attempt at national commercial suicide.

A Useful Field for the Heavy Lorry.

IN up-country mining districts, workings, which more or less belong to what might be termed the pioneer class of mine, not unfrequently find their chief difficulty to be the question of transport. Engineers, familiar only with European mines in which rail or canals often come up to the very shafts from which the minerals are raised, are likely to forget the enormous extent to which outlying mining industries are dependent for success on means of transport. The thanks of motor car manufacturers therefore, particularly those who make a speciality of building heavy luries for rough work, are due to the *Mining Journal* for the manner in which it has recently been drawing attention to the large number of mines in South America, Mexico, South Africa, India and many British colonies, in which horse and mule transport is at present alone relied on. Their rentability and chances of permanently paying a profit would be converted from their present decidedly perilous condition to a certainty, which would be extremely satisfactory to their shareholders, by the introduction of motor transport. Of course, for all mines that cannot actually load up into railway trucks or barges, the motor lorry, whether steam or petrol driven, should prove an enormous economy, though, of course, to a large extent in out-of-the-way districts the practicality of their introduction would depend upon the general condition of the roads, and these are often far from ideal. There are plenty of cases, too, in which, where mines under the same management are widely separated from one another, ordinary light touring cars are invaluable for enabling managers and engineers to keep adequate control of the works under them, and even the motor bicycle has been found to do excellent service in this respect.

Initiative Should Come from the Purchaser.

THE position of the heavy vehicle industry at present is such that there is, perhaps, no very great inducement for manufacturers, full up as they are with orders, to turn to fresh fields and pastures in mining districts for a market, so that the initiative must rather come from mine owners and managers. This initiative, we hope, thanks to the *Mining Journal*, to see more or less widely taken in the near future, and competent manufacturers approached with a view to the development of a lorry specially designed for mining purposes, in which the smallness of first cost must be far from the principal consideration. Absolute reliability and durability are, of course, the indispensable requisites of machines that may have to perform their duties in districts where repairing facilities may often prove to be far from ideal.

Needed for Mines at Home also.

EVEN within the British Islands, however, there is plenty of scope for the motor lorry in mining work, and this would appear to be particularly the case in Cornwall, where there are many important mines, situated at some distance from the railways, which are even still depending on horse traction. Even where not so dependent, and situated conveniently to railways, a curious circumstance comes in. The railway companies charge out of all proportion for small consignments of minerals below an amount of 5 tons, which is the usual load of a

truck. So much so is this the case, indeed, that many consigners find it comes cheaper to charter a whole truck and pay on 5 tons, even where they are only sending 2 or 3. At first sight this may not appear to be a serious matter, but with valuable ores like tin, where it is often necessary to get small consignments to their destinations at frequent intervals, the matter is a very serious one. In fact, the situation is such that there are good grounds for believing that a pick-up motor lorry service, which would take small consignments of ores from outlying Cornish mines, would prove not only profitable to its promoters, but a valuable boon to many small mineowners.

Fact and Fiction—A Triumph of Imaginative Journalism.—

THE FICTION
(See daily paper).

When going through the village of Charlwood a wagonette, driven by Mr. Coombe, of Reigate, was run into by a motor car, with the result that the car overturned the wagonette, and two ladies in the latter were thrown over a hedge and sustained serious injuries.

Mr. Coombe made every effort to gain the name and address of the chauffeur, but he did not stop, and raced away in the darkness.

This is the sixth accident of a similar character which has happened within a radius of five miles of Reigate within the last three weeks.

THE FACTS,

as stated by the driver of the car, were as follows:—

"A wagonette driven not by Mr. Coombe but by one of the two ladies, passed the car I was driving while the car was stationary, without the engines running, outside a house in which I was at the time. Shortly after passing the car, the wagonette was driven into a farm cart owned by the gentleman for whom I drive. The motor was nowhere near when this happened.

"Furthermore, as the car was back in the garage at 4.45, or, as near as I can estimate, fifteen to twenty minutes after the accident happened, the remarks about the chauffeur racing away in the darkness are absurd, as it was not lighting-up time.

"My employer will communicate with Mr. Coombe on the subject, and I am placing the facts before the secretary of the Motor Union."

We have had many efforts of imaginative attribution to motor cars of offences for which they were in no way responsible. But as a complete triumph of imaginative mis-description we think the above effort takes the palm. There is real genius about the statement that "this is the sixth accident of a similar character" on the Reigate Road. We wonder if the others were similarly reported and if they were equally true.

Marks of the Flowing Tide.

AMPLE proof of the substantial progress which the automobile industry has made in the last year, and of the pre-eminent position which it now occupies as a national industry has been provided by the Olympia Exhibition. Almost equally convincing evidence has been provided by the recent dinners of the two great automobile institutions of the country, the Automobile Club and the Motor Union. At both were assembled not merely representatives of the highest nobility and aristocracy, ambassadors from foreign powers, like Mr. Whitelaw Reid, and great servants of the State like Lord Roberts, but a perfect galaxy of all the talents were present as well. As our readers will see from our reports of both events, the speakers were most of them eloquent, often amusing, and naturally enough universally optimistic. But, perhaps, the most noticeable and effective speech, well-spiced with racy anecdote and

epigram, was that delivered by the famous patent barrister and expert, Mr. Fletcher Moulton, whose sense of humour has often made the gloomy precincts of the Chancery Courts peal with laughter during the hearing of the driest of patent lawsuits. It is of the highest importance to learn that Mr. Fletcher Moulton is now not only an automobilist but one who has become sufficiently enthusiastic to make so important a speech on its behalf. It is important not merely because his great intellectual gifts are now shown to be actively arrayed on the side of the motor car, but that as he is practically certain to hold office in the next Liberal Government we now know that we may look forward to having a powerful friend on the Treasury Bench should the ship of the State change pilots in the near future.

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"Motor Infantry."—When the Boer War was in progress, and for some time after it had come to a conclusion, the general public, and quite a respectable number of military authorities were convinced that the armies of the future would consist almost entirely of mounted infantry. They have all changed their opinions once again since the Russo-Japanese War, for circumstances alter cases so tremendously. When, therefore, authorities state that a revolution is likely to become general they must be understood as making the proviso "under certain conditions." This being understood, considerable interest attaches to the proposal made by Captain Paynter, of the Motor Volunteer Corps, in a recent lecture given at the Royal United Service Institution, that motor infantry, that is to say small bodies of infantry transported from point to point by automobiles, should form a regular arm of the service in future. The value of heavy automobiles for transport purposes we are all acquainted with, and the subject has been dealt with in some detail in our columns in connection with the Aldershot experiments. The use of the automobile for staff work, for conveying dispatches, and for enabling commanders to keep in touch with outlying posts, has been demonstrated over and over again in manœuvres in this country, and was shown to have practical value in the Manchurian campaign. The proposal to employ "motor infantry," however, is novel, and has got much to recommend it. Motor cars capable of travelling at a high speed and carrying from six to a dozen combatants at a pinch, could be used most effectively as supports to scouts, and for advance post work generally. They would have considerably greater mobility (given adequate roads) than mounted infantry, and would in many cases be quite as effective. Of course, their effective use involves two pre-suppositions — that the army to which they belong is operated on European or similar roads, and that the roads are not in possession of the enemy, but often enough in actual campaigning these conditions occur, and then motor infantry might do admirable service, particularly if, as Capt. Paynter suggests, light guns of the machine gun type were used for their support. The gift of prophecy is to some extent required to enable one to see how far the proposed arm is likely to prove effective, but that a proposal for its adoption should be made by a serious military authority in this formal and semi-official way, is a testimonial to the extent to which the automobile has convinced military men of its reliability and general usefulness.

THE 1906 SIDDELEY CARS.

Fig. 1.—Mr. Lionel de Rothschild's 100-h.p. Siddeley Racer, fitted with three-seated Touring Body. A description of this powerful chassis was given by us at the time that it ran in the Eliminating Trials for the Gordon-Bennett Race this year.

A FORTNIGHT ago we were able to give some of the leading particulars concerning the new cars which are being built by the Wolseley Company, but, at that time, no photographs were available, and we therefore had to fall back upon line drawings. Since that time, those of our readers who were able to visit the great Show at Olympia will, doubtless, have seized that opportunity of inspecting the excellent new models that were then brought before the public notice for the first time. Those who were not there, however, or who were unable to make a close inspection, will probably welcome the further illustrations which we now reproduce.

Fig. 1 is a view of the 100-h.p. racer that was built to the order of Mr. Lionel de Rothschild for the Gordon-Bennett Race this year, but is now fitted with a light 3-seated body for touring. It is shown with the bonnet

removed, and the large 4 cylinder engine is, therefore, clearly visible. Like the more powerful new series of Siddeley cars—of 18, 25, 32 and 70-h.p.—it is of the chain-driven type, but naturally all these standard models are of far more substantial build in every respect, and afford considerably more room for luxurious touring or landaulette bodies.

Fig. 2 shows the larger live-axle chassis, as seen from above, this model having an engine of 15-h.p. It is, however, practically identical with the 12-h.p. chassis, the chief difference being that the four cylinders are smaller. Well demonstrated by this photograph is the absence of all complication, and the "cleanness" of design, while the exceptionally long, outside springs that support the frame above the back-axle at once attract attention; these springs have, it will be observed, shock-damping top leaves that tend to prevent the lower leaves

Fig. 2.—View of the live-axle, 15-h.p. Siddeley Chassis which is one of the new models now being built by the Wolseley Company.

from separating when the car is travelling over exceptionally rough roads.

This same view also renders visible the torque-rod, A, although the lower member is hidden by the upper

their axes by the control-lever above the steering-wheel. Vertical push-rods, B¹, act upon the levers, B, in the same way as on the 32-h.p. engine and all four fulcrum-pins are connected together by the bar, B². A

further engine-control is provided by an automatic governor which is connected by the rod, C, with the throttle-valve, and also with an accelerator-pedal. Ignition is from accumulators, with high-tension plugs.

Very different in many respects is the 32-h.p. and other high-powered engines, an excellent idea of which is given in Fig. 4. Separate cylinders, cast complete with their heads, are employed, though the arrangement of the valves is the same as that on the smaller engines. Low-tension magneto ignition is fitted in addition to the ordinary high-tension system, the igniters being on the opposite side of the cylinders to the valves. Very neatly arranged, moreover, are the mechanical parts needed for ignition, these being all mounted upon, or driven by, a central shaft that passes across the centre of the crank-chamber. The commutator, D, is on one end of this shaft, the magneto is coupled up direct to the other end, and the longitudinal shaft which operates

Fig. 3.—The 15-h.p. Siddeley Engine, fixed in place in its "live-axle" Chassis; view from the "off" side, showing the combined Carburettor and governor-controlled Throttle-valve.

member. In reality it forms a triangular stay, which ties the axle to the frame, but has a swinging link, A¹, with cushion-springs, interposed at its forward end. No radius-rods are employed. Springs are introduced into the flexible couplings at the ends of the propeller-shaft to prevent end-play or any rattling, and the weight of the car is entirely removed from the live-shafts inside the back-axle, since the road-wheels run on the outside surface of the projecting axle-tubes. Except for these hub-bearings, ball-bearings are fitted throughout the transmission.

The compact gear-box, which provides three forward speeds and has the foot-brake just behind it, has very short shafts with wide gear-wheels; its operating lever works in a twin-slotted quadrant. Through the dashboard, the steering-pillar passes so that the steering-gear lies beside the engine, as seen in Fig. 3, and on the dashboard is a special mechanical lubricator for feeding the engine. This new lubricator contains revolving rollers that pick the oil up from the bottom, and scrapers that drain it off the top roller and cause it to flow down the feed-pipes to the engine.

All four cylinders on the 15-h.p. engine are enclosed in one aluminium jacket but have separate water-jacketed heads fitted with the inlet-valves above the exhaust-valves. One enclosed cam-shaft operates all the eight valves, and a modified form of variable-lift device has been adopted for the inlets. In the new design, the pivoted rock-levers, B, are carried upon eccentric fulcrum-pins, which are partially rotated about

Fig. 4.—View, from the "near" side, of the new 32-h.p. Siddeley Engine, fixed in place in its chain-driven chassis. In this illustration, the Variable-lift Inlet-valves, and the half-compression device for raising the Exhaust-valves are visible.

the igniters is gear-driven from it. Another novel feature of the same engines is the half-compression device for raising the exhaust-valves during the first part of the compression-strokes for facilitating starting. This is operated by a handle in front of the radiator and by the connecting-bar, E. The gear-driven circulating pump, F, with its exceptionally long bearing, is also prominent in Fig. 4.

THE NAPIER PETROL LANDAULETTE.

(Concluded from page 1460.)

Fig. 4.—The Napier Landaulette. View of the Chassis from above, showing the underframe for the engine, and the position of the driving chains inside the frame.

The Frame and Transmission.

CONSTRUCTED of armoured wood, the main frame is absolutely rectangular when viewed from above, for, owing to the position of the engine and radiator, it has not been necessary to depart from the simplest accepted lines. In front, the frame is carried on the usual semi-elliptic side-springs, but at the rear a third spring has been introduced in order to afford easier riding. This latter is also semi-elliptic, but is inverted and placed transversely, so as to connect the ends of the side-springs and support them by its attachment to a bracket which is carried out from the main frame to meet it. This suspension is very clearly indicated in Figs. 4 and 6, the former showing the arrangement when viewed from above, and the latter when observed from behind. It will be noticed in these illustrations, too, that the two rear side-springs are placed beneath the frame instead of at the side, and that they are supported by the axle in rather a peculiar manner owing to the arrangement of the chain-drive. Instead of resting on the axle proper they are hung below the tubular axle ends carrying the short driving shafts, the axle itself, which is bent, passing across underneath them. In front, there is nothing unusual, except that the position of the steering-column brings the steering-gear—which is of the worm and sector type—in front of the axle, but the connections are not greatly modified on this account.

Immediately behind the engine is the clutch, which is enclosed in the fly-wheel and is of the leather-faced cone type. It is not peculiar in itself, but the inner member, which is fixed to its shaft, is operated from

the other side of the gear-box. Sliding the gear-shaft in this manner, in order to operate the clutch, has always been standard practice on the 18-h.p. Napier chassis since its prototype was first introduced in 1903, but it is not often employed on other cars at the present day. In many respects, this landaulette chassis is similar to that of a new Napier touring car which we described in July, 1903, and it gives an insight into the sound English principles of high-class construction which have always held sway in the Napier works, that a type which was introduced then should still be a popular model to-day, and it is little wonder, in the light of this, that a great deal was thought of the original cars when they were first brought out. At that time, too, the floating gear-box

Fig. 5.—The Napier Landaulette. View showing the arrangement of one of the side chains which are placed inside the frame in order to leave an unobstructed entrance to the carriage.

Fig. 6.—The Napier Landaulette. Rear view of the chassis, showing the suspension of the main frame and the construction of the rear-axle, with its hollow ends, which support the short chain-driven axles.

was a great feature, and, if we remember rightly, it was a novelty at that time. It is still employed, and the gear-box rides, as will be seen in Fig. 4, on the differential countershaft at the rear end, and is hung in front by

a single bolt passing through one of the transverse members of the frame. Four speeds and a reverse are available, and the speeds are introduced by moving a single sliding sleeve, on what is generally called the Panhard system.

Practically the only new feature in the transmission is the rearrangement of the side-chains in order to leave the frame unobstructed on the outside. They have, for this purpose, been ingeniously mounted on the inside, and they drive the road wheels through short live-axles which are supported on extremely long bearings. An illustration of this arrangement is given in Fig. 6, where the great length of the bearings supporting the driving axles, and the manner in which they form part of the bent stationary axle itself, is clearly visible. In Fig. 5, one of the brackets supporting the counter-

shaft is shown; normally, of course, the chain-sprocket would have been placed outside on the projecting end of the shaft, instead of in the position which it does occupy.



Royal Commission on Motor Cars.—Further witnesses heard by the Commission sitting under the chairmanship of Lord Selby are Mr. Thos. Munro, clerk to the County Council of Lanarkshire; and Mr. A. G. G. Asher, clerk to the County Council of Midlothian, on behalf of the Association of County Councils of Scotland; Sir John Macdonald (Lord Kingsburgh), Lord Justice Clerk of Scotland, President of the Scottish A.C.; Mr. R. J. Smith, Hon. General Secretary of the Scottish A.C.; Mr. A. Vernon and Mr. J. Willmott, representing the Surveyors' Institution; Mr. Robert Black, county surveyor of Inverness; Mr. James Perry, county surveyor of Galway; Mr. James Boyce, of Scarborough; Miss Evelyn Everett Green and Colonel Bardwell, M.F.H., on behalf of the Highways Protection League; Mr. A. Murray, representing the Convention of Royal Burghs, Scotland; Mr. C. R. Dykes and Mr. G. R. Jebb, on behalf of the Canal Association; Mr. T. H. B. Heslop, county surveyor of Norfolk; Mr. W. Tanner, county surveyor of Monmouth; Mr. G. Montagu Harris, secretary of the County Councils Association; Mr. C. M. Pilkington, Nottingham; Mr. E. Storm, Nottingham; Mr. F. Knight, Tamworth; Mr. G. P. Langridge, and Mr. C. H. Todd, on behalf of the Motor Union; Captain J. A. Cole, Lincolnshire Automobile Club; Captain the Hon. G. A. Anson, Chief Constable of Staffordshire; and Dr. Melville Thomson, Bath, on behalf of the Highways Protection League.

Local Option.—Really we should have a terrible state of affairs if the recommendations of local authori-

ties could become binding at once without the approval of the Local Government Board. An ordinary full-sized ledger would not be big enough to contain the information that every driver would require as to what he might do in one district, and what he would have to refrain from doing in one county or another. The Surrey County Council at its last quarterly conclave decided that in their opinion the maximum speed for motor cars on rural roads in the day-time should be 20 miles an hour, but only 15 between sunset and sunrise, while in towns and villages the maximum speed should be 10 miles an hour at any time. The Surrey County Council also desire to make the owner of the car, when present, responsible jointly with the driver for the speed at which the car is travelling, and further desire that the owner should be compelled to furnish the police with the name and address of the driver in all circumstances when required. They further think that the person for the time being registered as owner of a motor car should in all cases be responsible in the civil courts.

THE Company of Coach Makers and Coach Harness Makers again offer, amongst their competitions for British subjects, a prize in connection with motor car work. The offer is a first prize of a silver medal and ten guineas, and a bronze medal and five guineas, for drawings of a limousine motor car with fixed hood and extension front, to carry five people in the body and one by the side of the driver.

THE NEW ARROL-JOHNSTON PETROL CARS.—PART III.

(Continued from page 1469.)

THE water-jacket of this 12-15-h.p. engine is of ample size, and passes around the two parallel cylinders. Both cylinders are bored out right through the casting, the combustion-chambers being formed

occurring each second revolution in each cylinder—and since the two cylinders are arranged so that they fire alternately, it follows that the crank-shaft receives an impulse from both connecting-rods every time it comes round.

The effect produced is thus equivalent in some respects — mechanical balance and regularity of explosions—to that of an ordinary 4-cylinder engine, although, of course, there are not two impulses per revolution.

Communicating through a short port with each combustion-chamber are the separate, detachable valve-chambers, A³, these being bolted centrally to the sides of the cylinder-casting, A, as seen in Figs. 9 and 12. Each valve-chamber is provided with an exhaust-valve, A⁴, an atmospheric inlet-valve and a low-tension (make-and-break) igniter, the valve-rods lying vertical—as in most engines—and the inlet-valve being immediately above the exhaust-valve. The igniters are formed by two independently fitted parts—the non-insulated, moving contact-arm, and the insulated, stationary contact-plug, A⁷.

The inlet-valves, complete with their seats, are held down by the induction-pipes, A⁴, and by yokes fitted immediately above the valves. Either valve can, there-

Fig. 13.—The 24-30-h.p. Arrol-Johnston Engine, fixed in place in the Chassis. View from the "near" side showing the Valves, the Igniters, and the detachable Cam-shaft Casing, D⁹.

between the two pistons, A¹, in each. Passing through the crank-chamber, B, at right-angles to the cylinders, is the two-throw crank-shaft, B¹, the long bearing-brackets, B², for which are bolted to the main casting, B. The ends of the two castings, A and B, are machined off flush with one another, so that the detachable covers, C, fit up against both with a flat face-joint, but there are projections, B³, on the latter, to carry the trunnion-pins, B⁴, for the rocking-levers, C¹. It is these two rocking-levers, C¹, that couple up the four pistons, A¹, with the two connecting-rods, C², one of which passes into the crank-chamber from each side. It should, perhaps, be more fully explained that the two pistons on each side of the engine are both coupled up by independent links, A², to their own rocking-lever, C¹, and that one of the connecting-rods, C⁴, enables each rocking-lever to operate upon the crank-shaft.

From what has already been said, it will have been gathered that, whenever an explosion occurs in either cylinder, the two outwardly-forced pistons operate simultaneously upon the crank-shaft, and that a more or less perfect balance results from the fact that the force is equally applied in two opposite directions through equally heavy, and precisely similar, moving-parts. In other words, both connecting-rods are forced inwardly, one giving an impulse to one crank-pin, while the other acts upon the other crank-pin. The engine works, of course, on the ordinary four-stroke cycle—an explosion

Fig. 14.—The 24-30-h.p. Arrol-Johnston Engine. View from the "off" side, showing the Carburettor, D⁶, the Magneto, E², and the Circulating Pump, E⁵.

ore, be removed readily, since it is only necessary to release the yoke and swing the induction-pipe up out of the way. A kind of hinge is provided, for this purpose, by the large unions that connect the induction-pipes, A⁴, to the throttle-valve, A⁵.

Close up to the throttle-valve, A⁵, is the simple float-feed carburettor, A⁶, which has an inspection-cover above the spray-jet. That portion of the supply which passes

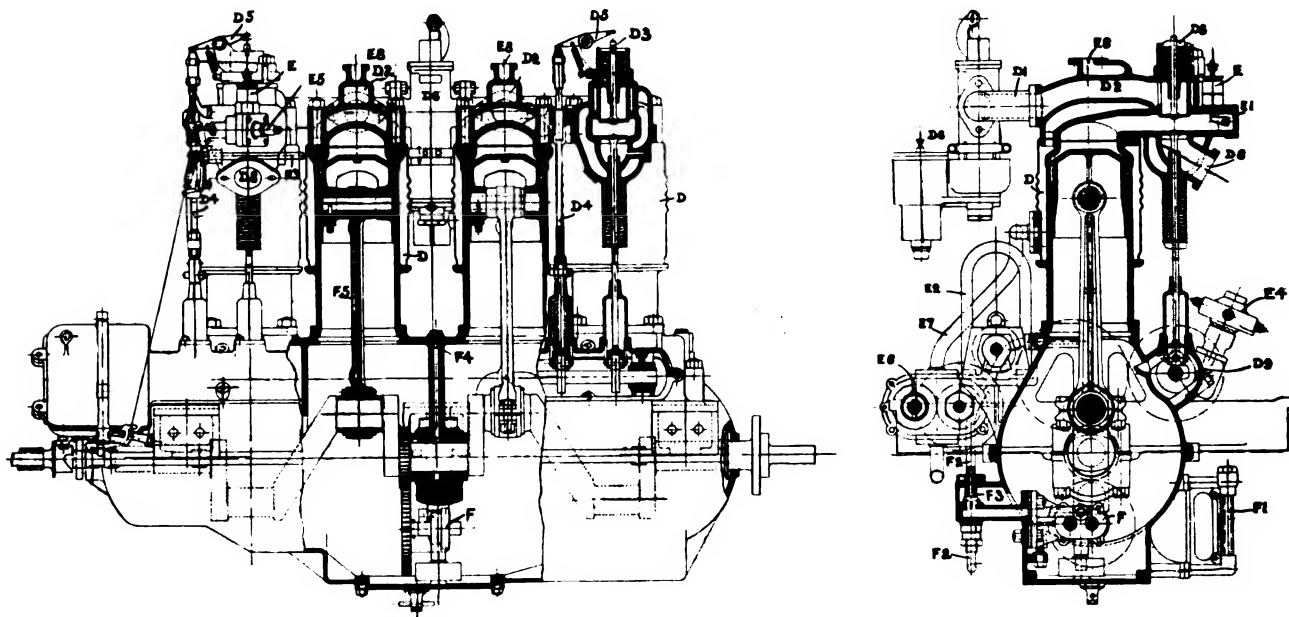
the spray-jet is drawn in direct from the atmosphere through the U-shaped tube seen in Fig. 8, but an auxiliary supply can also be admitted direct to the throttle-valve, A⁵, through the silencing chamber that is fixed immediately above it. The throttle-valve not only permits the richness and the volume of the explosive mixture to be varied, but it also enables the driver to admit pure air to cool the cylinders when the car is descending steep hills.

Each exhaust-valve, A⁶, is operated from its own half-time shaft, and the same cam-actuated mechanism that controls it also works the igniter in the same valve-chamber. Both the cams, B⁵, are visible in our illustrations, lying as they do close up to the crank-chamber-casting, B. The cam-shafts, B⁶, are quite short, merely passing through from the inside to the outside of the chamber in order to connect the large enclosed gear-wheels—which mesh with the half-sized pinions, B¹, on the crank-shaft, B¹,—with the exposed cams, B⁵. Not

chamber. From the pump, C⁴, the oil is led by the two pipes, C⁵, up into the hollow trunnion-pins, B¹, whence it is conducted through special passages, drilled in the various moving parts, to all the bearings and to the pistons. After performing its work, it finds its way back to the bottom of the crank-chamber, where it is again caught up by the pump.

A similar type of pump is also employed for the cooling water, but this is fixed—as seen in Fig. 9—in front of the engine. The larger spur-wheel by which it is driven from the crank-shaft, B¹, contains the centrifugal governor, and the smaller spur-wheel (on the crank-shaft) has a sprocket alongside it for driving the magneto by a chain.

This remarkable engine has so fully proved its reliability, durability and efficiency that nothing further need be said as to its merits in these respects, and the description which we have just given will have served to show that every part is much more simple and accessible than



Figs. 15 and 16.—Longitudinal and Transverse, Vertical Sections (partly in elevation), showing the construction of the 4-cylinder, vertical, 24-30-h.p. Arrol-Johnston Engine.

only does the external mechanism act direct upon the exhaust-valves, but it gives a very quick "break-action" to the igniters. Experience has shown that there is no need to fit any hand-controlled "timing" gear for advancing or retarding the ignition whilst the engine is running, but provision is made for adjusting the firing moment, from time to time, if necessary; apparently the action of the magneto and of the trip-mechanism has the effect of automatically compensating for variations of engine speed. For facilitating starting, relief valves are fitted to the valve-chambers, just beneath the igniters, these being manipulated by a lever in front of the car.

In Figs. 11 and 12, the oil-pump, C⁴, is seen in place in the base of the crank-chamber. It is of the spur-wheel type, and is gear-driven from one of the large half-time gear-wheels. The well, in which it is situated, is sufficiently deep to prevent the connecting-rods from splashing in it, and consequently the lubrication of the entire engine is not only automatic, but remains constant, irrespective of the precise quantity of oil in the crank-

is at first sight apparent. It only remains, therefore, to mention that it is thoroughly well made from the best materials that are procurable, and that it runs very steadily in the new cars which the Company are building. In the matter of flexibility, it is extremely satisfactory, enabling the car to be driven quite slowly, or to be started from rest on the top gear on comparatively level surfaces. The bore and stroke are $4\frac{1}{4}$ and $6\frac{1}{2}$ in.

The 24-30-h.p. Vertical Engine.

Although the 4-cylinder Arrol-Johnston engine is in the main similar to those with which most motorists are familiar, it yet has several novel features, some of which have been borrowed from the special 12-15-h.p. model. In Figs. 13 and 14 it is seen, from both sides, fixed in place in the standard 24-30-h.p. chassis, and in Figs. 15 and 16 are given sectional drawings that show the entire construction.

Each cylinder is formed by a separate symmetrical casting, fitted with studs at the top for holding down the

jacketed cylinder head. Around the cylinder proper is a thin copper jacket, which is corrugated to allow for expansion, and is clamped firmly between the cylinder and the head-casting. Through this joint, ports are cut to allow the water to pass from the lower jacket up into the upper jacket, but the copper itself constitutes a gasket-joint for the combustion-chamber.

Formed on one side of each cylinder-head is a valve-chamber which receives the inlet-valve, D^3 , above the usual type of exhaust-valve, and this valve-chamber is also fitted with a low-tension igniter of the same design as that employed for the smaller engine, as well as with an ordinary high-tension ignition-plug, E^5 . The cylinder-heads are cast with large passages, D^2 , leading across to the inlet-valves, D^3 , from the opposite side of the engine, and thus the induction-pipes, D^1 , are rendered quite simple fittings although the carburettor, D^6 , lies on the further side from the valves. Quite short, too, are the exhaust-ports, D^8 , that lead the gases into the common exhaust-pipe-fitting, D^7 .

Another interesting feature is that the cam-shaft, which operates the igniters and the valves, can be easily removed if necessary, since the upper portion, D^9 , of the casing containing it is made separately, and is bolted to the main crank-chamber-casting. This detachable portion also carries the gear-driven commutator, E^4 , which is used in conjunction with the auxiliary accumulator system when the high-tension plugs are employed. As our illustrations show, the inlet-valves D^3 , are actuated by the push-rods, D^4 , through the rocking-levers, D^5 , while the former also serve to operate the moving members, E^1 , of the low-tension igniters; the trip-motion

that gives a quick break at all times is connected with a rod, E^3 , in such a way that the time of ignition is retarded automatically when starting the engine.

Fixed to the main portion of the crank-chamber are the magneto, E^2 , and the water-pump, E^6 , both of which are driven by gear-wheels from the crank-shaft. From the pump, the water is led by the pipe, E^7 , to all four copper jackets, and from the top of the cylinder-heads it passes back to the radiator by the pipe, E^8 . All the gear-wheels at the front end of the engine are enclosed in the crank-chamber, but they are all readily accessible.

Our sectional drawings show the oil pump, F , in the base of the crank-chamber, and the manner in which it is driven from the crank-shaft. They also show the arrangement of the entire lubricating system. The base casting is quite independent of the crank-shaft bearings, and merely serves to catch and retain the oil ready for the pump to feed it through the pipe, F^2 , and the passage, F^4 , to the central bearing. From this bearing it is led by holes drilled in the crank-shaft to all the other bearings, and up to the hollow gudgeon-pins and the pistons by the pipes, F^5 , which are fitted alongside the connecting-rods. Every part is thus fed positively and automatically. In conjunction with the pump, there is a gauge, F^1 , on the one side to show the level of the oil, and a relief-valve, F^3 , on the other side, this valve returning any surplus oil direct to the well if the pressure increases abnormally. An oil-bath is formed around the cam-shaft, the oil being caught by it as it escapes from the pistons.

The cylinders of this 24-30-h.p. engine have a bore of $4\frac{1}{4}$ in., and the stroke is 5 in.

(To be continued.)



"Red Lion and Crown" Cars.—Some curiosity has been not unnaturally experienced with regard to the information which we recently published, that electrically propelled vehicles would be exempted from the ordinance excluding motor vehicles from the parks during certain hours in summer, as to how the police will distinguish them from the very similarly shaped petrol vehicles which we last week christened "mock electrics." The difficulty is, we understand, to be solved as follows:—The licensing authorities for vehicles in the metropolis are arranging to specially license electromobiles in future, and cars so licensed will be embellished with a large red lion and crown painted upon them. It will, of course, be an offence for anyone to put this distinguishing mark on any vehicle not electrically propelled, and one of the conditions of this special registration is to be that the owner of the car will be jointly responsible with his driver for offences against the law.

The Lebaudy Airship.—We have recently described the successful evolutions of the Lebaudy airship in the neighbourhood of Toul under the inspection of the Aeronautical Department of the French Army. Of course, the object of the demonstrators has hitherto been to show how successfully the airship could maintain itself at a regular height above the ground. Questions, however, have been raised as to whether the airship was capable of rising sufficiently to escape, if need be, projectiles launched against it by a possible enemy. The last demonstration was, therefore, directed to satisfying the military experts that the solution of this problem

involved no difficulties. The airship rose to a height of 200 metres, at which it was enveloped in thick mist, and gradually, by throwing out ballast, rose to a height of 800 metres. At this elevation the town of Toul could be perceived from time to time, the airship continuing to execute evolutions in absolute accordance with the desires of its pilot. Finally, it attained a height of 1,370 metres above the sea level, that is to say, 1,120 metres above the point from which it had started, having thrown out 320 kilogs. of ballast. Continuing its evolutions at about this height, falling and rising as required, it finally came to earth to the south-east of Toul. It was still provided with 150 kilogs. of ballast when it came to earth. This demonstration finished the series of experiments with the Lebaudy airship which the military authorities have been conducting, and the gas-vessel has now been deflated, and the staff of engineers and their assistants who have been concerned in these triumphant operations are returning to Moisson to carry on further experiments. From October 8th to November 10th the airship went out practically daily, and often carried six passengers. It made reconnaissances outside the entrenched camp of Toul and from there to Nancy. Experiments have been made with dropping projectiles, long-distance photography, and other subjects of interest, and the airship has been raised without any difficulty to a height at which it is generally admitted a balloon is absolutely invulnerable. This latter point is important, as there have been people—we will not say authorities—who have disputed the possibility of a navigable balloon accomplishing it.

THE 1906 WINTON CARS.

(Continued from page 1462.)

The 25-h.p. Winton Car.—View of the complete car, fitted with handsome side-entrance body.

AN unusual feature in the pressure feed system is the employment of a mechanical air pump instead of utilising the exhaust. This pump, D, is mounted directly above the larger pump, B, and its piston is carried on the same rod. In addition to feeding the petrol, however, it is also used for filling the lubricator on the dash, from which the oil is mechanically forced to the bearings.

High-tension battery ignition is now the only system used on these cars, and the gear-driven commutator for distributing the primary current is mounted in an accessible position near the engine. The high-tension ignition-plugs are mounted centrally in the cylinder heads, but the tops of these only are just visible in Fig. 2, as they are partly obscured behind the inlet-valve chambers. Each wire is independently supported close up to its plug by an insulated ring, E', formed solid with the water pipe which passes above the cylinders. Circulation is effected by a gear-driven centrifugal pump mounted on the side of the crank-chamber, where it is in the p
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eliminate any strains which might otherwise be set up through sudden acceleration or retardation of the engine.

With so many gear-driven attributes to the engine, the arrangement of the spur-wheels naturally presents features of interest, especially when it is remembered that they all have to be on one side of the engine in order to carry out the scheme for accessibility, which is exemplified in the vertical division of the crank-chamber. The main spur-wheel of the system is, therefore, mounted on the cam-shaft instead of the crank-shaft, and the others are set like planets around it. Neither the fan nor the commutator could conveniently be driven direct from this wheel on account of their relative positions, and the necessity (in the case of the latter) for a specific gear ratio. Idle wheels have, therefore, been introduced, and the commutator, requiring a double reduction, is driven through a second train of wheels, F', F', which are pro-

The 25-h.p. Winton Car.—Side view of the chassis showing the double springs.

THE NEW 12-15-H.P. DE DIETRICH CAR.

(Concluded from page 1464.)

Fig. 4.—The 12-15-h.p. De Dietrich Car.—View of the chassis from above.

The Frame and Transmission.

TUBULAR cross-members are employed to stiffen the side-members of the main-frame which, as usual, are pressed with a tapering section, and narrowed together at the dash in order to secure a wider steering lock with a moderate track. At the rear of the frame the ordinary channel section cross-member is employed, but in front another straight tubular distance piece is used instead of fixing a cross-member below the radiator. This is done in order to allow the engine to be drawn forward before removing it from the frame. Semi-elliptic springs support the frame at each end, and those at the rear lie outside, instead of beneath, as is now almost invariable practice. The front axle has straight ends which hold the forks on the hubs of the front wheels by vertical pins passing through them.

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nut and rack, and has provision for taking up wear, while another special feature is that the construction affords support to the steering-lever on both sides, instead of allowing it to overhang, as it does in most systems.

Accommodated in the fly-wheel is the leather-faced cone-clutch, which is of special design. It is similar, however, to that employed on the larger cars, and the very full description which we gave on July 22nd, 1905, not only describes its peculiarities in detail, but also illustrates how easily it may be dismantled. Simplicity in this respect is one of the features of this car, but the arrangement of the clutch gear is one of the most pleasing of its numerous well-designed details in construction, for it is an excellent example of how simple, and yet how accessible, the ordinary cone-clutch

Fig. 5 —The 12 15 h.p. De Dietrich Car.—Side view of the chassis.

can be made. Adjustment is also easily accomplished because the clutch-spring is stationary, and, being placed against the frame, can be reached from the outside.

Between the clutch and the gear-box is a shaft which has a universal joint at both ends. The gear-box, itself, is supported on two of the tubular transverse members of the main frame, and the method of carrying it is clearly shown in Figs. 4 and 6. At the rear end, the box is fixed directly in place by sockets formed by the halves of the main casting, but in front it is suspended from

intended to enable the top half to be entirely removed without disturbing anything. Ball-bearings are employed for the gear-shafts, and the four speeds are introduced by means of a single sliding-sleeve, which is operated by a lever working over a "straight-through" quadrant. In order to render self-alignment possible, universal joints are introduced into each half of the differential-countershaft, this being one of the special features which was first introduced on that De Dietrich model which created such a sensation at the last Paris Salon.

Very powerful brakes are provided, that on the countershaft being of the hinged band type, and those on the rear wheels having internal expanding shoes. No special features have been introduced on the foot-brake, nor on the hub-brakes, so far as the brakes themselves are concerned; but one very ingenious fitting is provided in the side-brake mechanism, which should be a

Fig. 6.—The 12-15-h.p. De Dietrich Car. View of the Gear-box, Clutch, and Dash, also showing the Spring Buffer, B, in the side brake mechanism, and the Small Lever, A, on the dash, which shuts off the petrol supply at the jet.

two clips which support steel rods secured to the gear-box, so as to form brackets. This method of construction thus removes the necessity for casting long aluminium arms on the gear-box, merely in order to support it, and while thus making for strength and neatness it also facilitates the work of erection.

These steel rods are attached to the lower half of the box, whereas the weight is carried by the top half at the other end. An additional support, however, is provided at the rear end by attaching a hook to the lower half of the gear-box, but this is not normally in use being only



It is stated by the *Sussex Daily News* that the ravages wrought by motor cars on the main Brighton roads are so terrific, that the East Sussex Council has voted £1,000 for necessary repairs. Well, the Council is responsible for half of the road between London and Brighton, and, presumably, they

Fig. 7.—The 12-15-h.p. De Dietrich Car. Another view of the Gear-box, showing one of the universal joints in the differential countershaft.

distinct improvement—in fact, it is remarkable that the idea has not long ago become general practice. In the main brake-rod is a spring buffer, B, formed by a helical compression spring enclosed in a metal case. It takes up practically no room, and does not interfere in any way either with the adjustment or the use of the brakes, but it is calculated to improve their action by making it possible for them to be applied with a varying pressure. In an ordinary brake system the shoes are either hard on or quite clear, the only difference in pressure available being that due to lack of rigidity in the connections, but in the De Dietrich side-brakes a cushioning action is afforded by the device specially designed for the purpose.

Dimensions.

Engine: Bore, 90 mm.; stroke, 120 mm.

Chassis: Wheel base, 8 ft. 4 in.; track, 4 ft. 7 in.

Wheels: 870 mm. by 90 mm. both back and front.



yearly vote a substantial sum for its up-keep. That motor cars are responsible for the damage is, of course, an absurdity, but no doubt we shall now find every District Council, when arranging for the repairs of its roads, explaining that the expenditure is due to the damage caused by automobiles!!!

THE NEW 14-22-h.p. GERMAIN CAR.

(Continued from page 1465.)

Fig. 2.—The 14-22-h.p. Germain Car. View of the Dash showing the pedals; that on the extreme left is for slowing down the engine, and it is adjacent to the clutch-pedal, so that both may be pressed simultaneously with one foot.

CHANNEL section cross-members are used to stiffen the frame, and these also support the gear-box, which is secured rigidly to them. Three speeds and a reverse are available, and on the top speed the engine is connected direct to the live-axle. Only one sliding member is used to provide the three changes of speed, and the lever works over a "straight-through" quadrant, which is ingeniously constructed so as to do away with the necessity for a trigger on the lever itself. The quadrant is mounted on small springs so that it moves bodily outwards when changing gear, and flies back into position directly the lever comes opposite to a notch. Between the gear-box and the back axle is a long exposed propeller-shaft which has a

Fig. 3.—The 14-22 Germain Car. View of the rear-axle, showing the horizontal division of the casing and the triangular torque-rod.

universal joint at each end. Short radius-rods tie the axle-casing to the frame and a long triangular torque-rod prevents it from unduly twisting, while at the same time giving a certain flexibility to the drive on account of the spring suspension at its forward end. Owing to a horizontal joint, the differential gear is rendered very accessible, and a very neat appearance is also given to the back axle as a whole by the casing being kept as small as possible. Instead of mounting the road-wheels on the axle itself they are carried on extensions of the axle-casing, which thus relieves the live-axle of anything but a purely torsional strain. Ball bearings are employed in the hubs of the road-wheels and also throughout the transmission. An ordinary leather-faced cone-clutch is fitted in the fly-wheel of the engine, but the clutch spring is stationary, and in such a position that it is easily adjustable. Very large internal expanding brakes are provided on the rear

Fig. 4.—The 14-22-h.p. Germain Car. View of the engine from the inlet-valve side, showing the Eisemann High-Tension Magneto and the variable lift mechanism below the push-rods of the valves.

Fig. 5.—The 14-22-h.p. Germain Car. View of the engine from the exhaust valve side, showing the gear-driven circulating pump. Brass jackets, secured in place by shrunk steel rings without brazing, are fitted to the steel cylinders.

wheels, and immediately behind the gear-box is a strong external brake of the locomotive type.

The Engine.

Particularly neat is the four-cylinder engine with its smooth brass water-jackets surrounding the separate steel cylinders. This form of construction has been a feature of Germain cars in the past, and a description of the construction appeared in our issue of February 4th, 1905. It will be remembered that each cylinder is bored from the solid bar and is turned with flanges at each end, the bottom flange serving for fixing it to the crank-chamber, and the top flange providing an attachment for its cast-iron head. One end of the brass jacket is kept water-tight by the joint between the head and the cylinder-flange, while the other end is secured by a steel ring which is shrunk over the jacket. This ring, it will be observed, has to be heated *in situ*, because it cannot be slipped on from either end once the jacket is in place. Water passages are provided through the two flanges at the top, consequently it has not been necessary to provide a separate water service to the heads as well as to the cylinders.

Unlike the larger Germain models, this engine has its valves arranged on opposite sides, and there are, therefore, two cam-shafts. Very neat variable lift devices are fitted to the inlet-valve push-rods, and the engine is controlled by them from a hand lever above the steering wheel. In the induction-pipe also, however, there is a

throttle-valve, but this is only connected to a foot pedal and normally remains full open. Its object is to enable the driver to slow down the engine whilst changing gear, by pressing both it and the adjacent clutch pedal simultaneously.

No special features have been embodied in the carburettor, which is of the simple float-feed type, having a supplementary air port capable of being reset by hand whenever it may be considered necessary to do so.

Symmetrically arranged on either side, are the Eisemann magneto and the circulating pump, both being gear driven from the cam-shafts on their respective sides. Timing of the ignition is provided for by means of a hand lever above the steering wheel, and the neatness of the ball and socket connections between the rods, used in performing this operation, is one of the many evidences of careful high-class construction, which are plainly visible throughout the chassis. In front of the engine, mounted on a bracket, secured to the crank-chamber, is a belt-driven fan, and the belt can be tightened when required by rotating the eccentric bush by which the fan spindle is carried in the bracket. Lubrication of the bearings is carried out on the drip-feed system, oil being forced up to a sight-feed fitting on the dash by exhaust pressure. In addition to the engine bearings, those in the gear-box and the differential are also lubricated from the same source.

“IS NOT THE MOTOR ‘BUS BUSINESS

UNDER the above heading *The Financial News* have, in Wednesday's issue, a critical article upon motor omnibus flotations. We have repeatedly published warnings against the laying hold of the automobile indiscriminately by company promoters, mainly for the purpose of securing funds from the public. The danger is a real and vital one to the motor industry, and should be stopped at any price. We are glad, therefore, to see our financial contemporary expressing the same views upon the subject which we have so frequently enunciated.

The following extract is the conclusion of the article to

BEING JUST A TRIFLE OVERDONE?”

which we refer:—

“There is no question that the motor omnibus industry is destined to assume great proportions; and it is equally certain that well-considered enterprises, reasonably capitalised, and established on the basis of approved experiment and trustworthy data, will have excellent promise of success. But the principle that it is not safe to stake money on a class of investments without considering the individual enterprises of which the class is composed has been recently exemplified in the Cycle and Brewery markets, and must not be overlooked. The investing public may not see the bearing of this principle upon the motor 'bus campaign unless the facts are brought to the front. It is to urge the necessity of discrimination, and to point the lesson which we think is enforced by the prospectus of the Motor 'Bus Company, that we have dwelt at some length upon the issue of that enterprise.”

Road Tarring Experiments.—The stretch of tarred road at Byfleet, which was treated last August for the purpose of testing the advantages of tar treatment as a dust preventative, and which we have kept under observation ever since, has turned out a dismal failure in the wet weather. As our readers will remember, the stretch of road treated was that from “Byfleet Corner” down to the Wey Navigation Canal—a distance of about three-quarters of a mile. During the months of August and September the tar proved an effective dust layer, though it had to be frequently brushed clean owing to the “effects” of horse traffic. Since the end of October, however, when the road has been exposed to alternations of frost, thaw and heavy rain, the surface has gone absolutely to pieces and forms a slough of despond not equalled by any main road in the neighbourhood. The remnants of the tar seem to have effectively assisted in the formation of mud, and, needless to say, it is a black mud, the adhesiveness of which has a tremendous effect on increasing resistance to traction. It is only fair to say, as regards the tarring process, that the stretch of road on which it was tried

was always more or less defective. It was originally not well built, it has always been singularly dusty in summer and muddy in winter, though never anything like as muddy as now. It is possible that the tarring on a new road, properly built and properly made up before the tar was applied, would prove more successful. All that can be said at present is that the Byfleet tarring experiment has wholly failed to withstand wet weather.

Dangerous Driving.—We have often poured forth the vials of our indignation on drivers of any kind or description who have ventured to drive on the wrong side of a London shelter. It is about the most dangerous thing that can be done in our streets, for everyone crossing feels convinced that no one will violate the sacred rule and is therefore not looking out for traffic coming in the wrong direction. We are sorry, therefore, that this offence has been committed by the driver of a motor 'bus and we certainly do not think that Mr. Curtis Bennett, before whom the offender pleaded guilty, was at all too draconic in imposing a penalty of 40s. and 2s. costs.

THE OLYMPIA EXHIBITION.

AT OLYMPIA.—Views of the interior and exterior of the new War Office Motor Ambulance Van, constructed by Straker and Squire. A description of this appeared last week.

It is only now, when the great Show has closed its doors—as it did last Saturday night—that a really complete idea can be formed of the extraordinary welcome it has received at the hands of the general public. The interest taken in the exhibits, and the amount of business that was done, has, from all accounts, exceeded the most sanguine expectations of the organisers, while on the other hand, everyone was unanimous in their praise of the efficient manner in which the Society of Motor Manufacturers and Traders conducted their arduous task, and carried their well-considered arrangements through without the shadow of a hitch. The attendance throughout the week was all that could be desired, considerably exceeding that at the previous Exhibition last February.

In our report last week, we devoted our attention almost entirely to the pleasure vehicles and to the exhibits of tyres, leaving over for this further article a consideration of the commercial vehicles, the motor boats, and the novelties of an "accessory" character. We also gave, however, a classified table setting forth the leading features of those commercial cars which were on view, that table corresponding with the comprehensive table of the previous week, when the pleasure cars were similarly collated.

'BUSES AND LURRIES.

Perhaps the most noticeable fact brought to light by the heavy vehicles at the Show was that the majority are propelled by side chains. A special significance is doubtless given to this since hitherto the Thornycroft 'buses have had a single chain, and the Company have had every opportunity of weighing all pros and cons, in the light of recent practice with various transmission systems,

while they were designing the entirely new side-chain model that made its first appearance at Olympia. This latest 'bus chassis has so many special features that we propose to devote a separate description to it, and to their new 1-ton model, next week. The Wolseley 'bus and that of Messrs. Straker and Squire, are both, of course; well-known instances of chain-driven vehicles, and both have—as already described in detail—spring-cushions to relieve the chains of sudden shocks. In the Wolseley case, it will be remembered, the spring-cushions are inserted between the radius-rods and the stationary axle, while the Straker-Squire device consists of volute springs mounted on rods that project rearwardly from the axle. Incidentally, while mentioning

AT OLYMPIA.—The new "one man" 'bus constructed by Straker and Squire for the Great Western Railway Company. All the passengers must enter and leave the vehicle by the steps near the driver who can thus make sure of collecting the fares.

AT OLYMPIA.—Baslow and Bakewell Motor Omnibus Service.—One of the new vehicles supplied to the Derbyshire Motor Omnibus Co. by the Motor Car Emporium, Ltd.

the vehicles of these makers, it may be remarked that Messrs. Straker and Squire are about to introduce another British-built model having a more powerful engine, and a word or two may be said about the body that was shown on the Wolseley chassis. The Straker-Squire engine now has cylinders of $4\frac{1}{2}$ -in. bore, but the 30-h.p. type is to have the bore increased to 5 in. On the Wolseley chassis, the body (designed by Mr. Stanley—lately with the Company at their Adderley Park Works) was particularly strong in relationship to its weight, besides being very graceful in every outline, this result having been largely obtained by the judicious use of steel forgings for bracing it into a rigid structure right up from the main-frame.

Also of the chain-driven type are the quite new models exhibited by the Arrol-Johnston Company, and by the Simms Manufacturing Company, both of which bear evidence of sound design and good workmanship. The former has its chains—which are unusually short—enclosed in aluminium casings, its differential countershaft is carried by the long tubular radius-rods that pass forward from the axle to the frame, and not only is a spring-drive introduced at the rear end of the universally jointed shaft that drives the differential gear, but a transverse spring is used for increasing the effectiveness of the usual side-springs; a parallel-motion device is also fitted between the stationary axle and the frame to relieve the springs and the radius-rods of all lateral strains. The latter chassis—the Simms—has an extremely strong gear-box that acts as a central cross-member for the frame, and its change-speed mechanism, which is operated on the “Mercedes” principle, has jaw-clutches that obviate bringing any of the spur-wheels in and out of mesh with one another.

Chain-driven, too, are the Clarkson, Maudslay, Iden, and Beaufort models, as well as the “S” type chassis shown by the Motor Car Emporium, while the James and Brown ’bus—which by the way has an exposed form of rack-and-pinion steering—is fitted with extraordinarily long chains at each side. On the Clarkson stall, the new double-deck pattern attracted considerable attention, for not only have the Clarkson single-deckers proved eminently successful in various parts

of the country for some little time, but many alterations have been made in the “flash-steam” system, which is peculiar to the larger cars. The generator coils may now be said to be of a volute shape, for each section is coiled into a conical spiral in order to prevent the water—which enters at the top of the generator—from flowing down freely by gravity, and so allowing the generator to empty itself when at rest. The system is rendered even more similar to that of the White steam cars by the use of a thermostat to control the fuel-feed, and an automatic by-pass that causes the steam pressure to regulate the feed-water. On the Iden chassis, which has a transverse spring behind the rear axle and has underframe members extending the entire length, an interesting feature is the clutch, for although it is of much the usual internal-cone type, the leather-faced member has copper friction-blocks that merely utilise the leather as a soft pad. Of the other cars mentioned above in this paragraph, that exhibited

on the Motor Car Emporium stall is in some respects remarkable, since the engine has ball-bearings for the crank-shaft, and it is also equipped with a special mechanism by which it can be used as an air-pump brake.

In several cases these side-chain cars have the foot-brake arranged in such a way that it acts direct upon the two sprockets at the ends of the differential countershaft, two interconnected brakes being thus employed. This is so on the Thornycroft, Simms, Clarkson and Maudslay ’bus chassis; on the last mentioned model these brakes are of the internal type.

On four types of commercial vehicles, including the Milnes-Daimler itself, the rear road-wheels are carried by a stationary axle and are gear-driven, in somewhat the same way as has always been done by the Milnes-Daimler Company. In that case, however, the countershaft carrying the pinions at each end is supported on the long radius-bars that tie the axle to the frame, whereas the latest 1-ton Thornycroft, and the ’bus chassis exhibited by Messrs. Straker and MacConnell,

AT OLYMPIA.—A new double-decked ’bus intended for the “Vanguard” service, constructed by the De Dion Company. The top seats are enclosed, which gives the ’bus an extremely high appearance.

AT OLYMPIA.—View showing one of the Shock-Dampers on the 120-h.p. Fiat Racing Car. Fixed to the main frame is a Brake-drum, A, around which is a Brake-strap, A¹, pressed up against it by an adjustable Spring, A²; the Brake-strap, A¹, is tied to the axle by a rod, B, which is hinged to a lug, B¹, projecting from the axle.

have this countershaft mounted direct upon the stationary axle itself. Very dissimilar also in many respects is the transmission on the De Dion 'bus, for on these cars the differential-gear is carried by the main-frame, and it is only the short cardan-driven shafts that are mounted upon the axle proper. The De Dion main frame, by the way, is made of wood with steel plates clamped firmly at each side, and the Straker and MacConnell engine is equipped with the necessary gear for rendering it effective as a "suction" brake.

Amongst live-axle cars, it was noticeable that horn-plates were in favour with several makers. Such is the case on the Dennis model (which, it will be remembered, has a worm drive), on that of the British Automobile Development Company, and on the Scott-Stirling 'bus. The Dennis has a transverse spring connected with the

side springs, and there are two torque-rods—one on each side of the centre—to tie the axle casing to the frame. The "British" 'bus is quite a new model introduced by a recently formed Company, and its engine has all the valves mounted centrally above the cylinders. As hitherto, the engine on the Scott-Stirling chassis lies beneath the driver's seat, and a clutch of the internal expanding variety is employed.

Another live-axle chassis at the Show was the "Ducommun," exhibited by the Motor Car Emporium, and this had many very unusual characteristics. Although the axle is bevel driven, spur-gearing is introduced between the propeller-shaft and the bevel-pinions, and further than this we noticed that no radius-rods or torque-rods connect the axle with the frame. The engine, too, has its own peculiarities, for there are two transverse cam-shafts passing across between the crank-pins, and these operate all the valves in a very simple manner.

On the score of suspension, apart from such points as have been mentioned above, attention might be drawn to the sliding-pins and other slipper devices used for attaching the springs to the frame, instances of these being found on the Straker-Squire, the Dennis, the Simms, and the De Dion models. There is, too, the leaf-spring hanger of the De Dion Company for connecting the rear ends of the front springs to the frame, and the "Ducommun" 'bus which has its front-spring shackles horizontal instead of vertical. The De Dietrich 'bus has additional side-springs to supplement the usual semi-elliptics.



ACCESSORIES AT OLYMPIA.

THERE is always a fascination about a well-displayed collection of motor accessories, and never have we seen a better, or more representative, exhibition than was held in the gallery at Olympia. It was, as usual, by way of being a side show, and in this capacity had the misfortune to attract the greater proportion of that inevitable

AT OLYMPIA.—Two views—one from each side—of the 120-h.p. Engine fixed in place in the Fiat Racer, which was driven by Lancia this year. A single rod, A, operates the exhaust-valve, A¹, and the inlet-valve, A², of each cylinder by means of a rocking-lever, A³; the valves are held up against their seats by external leaf-springs, A⁴, and there are strong helical springs, A⁵, to press the rods, A, downwards. For cooling the exhaust-valves, the water—which enters the cylinder-jackets by a branched pipe, B,—is carried through a jacket in the valve-housings, from which the return pipe, B¹, conducts it back to the radiator.

varied to suit the internal pressure of the tyre. Between the removal and the re-pumping of a tyre, there is usually some form of repair to be executed, and in this connection attention may be drawn to the portable vulcanisers which were exhibited by Harvey Frost and Co. They are no longer a novelty—in fact, they are now coming into very general use—and this system of repair is already familiar to our readers, but in addition to the small plant for the repair of inner tubes, which has been on the market for some time, this go-ahead firm have now brought out a vulcaniser for use on outer covers; the operation being performed without removing the cover from the rim.

Head-lights.

Lamps undoubtedly add the finishing touch to the appearance of a complete car, and at the present day the best lamps are so well made and so perfectly finished that they are worthy of their imposing position. No exhibit in the whole gallery was more attractive than that of André Godin, who has the agency for the famous

Ducellier head-lights, where almost every conceivable size and shape of motor lamp was on view. The latest model, which is a large, self-contained acetylene head-light, is constructed so that it can be charged with water and carbide, and then left unused, for a month if necessary, without wasting the carbide. One of the troubles of night driving is the difficulty of reading, and sometimes, too, of finding, the signposts, for which purpose the paraffin side lamps are generally inadequate. Those who indulge much in journeys by night, therefore, will probably find an advantage in having one of the small acetylene lamps which were shown by the United Motor Industries, for it is constructed with a swivel attachment which enables it to be permanently mounted above the dash, and yet renders it possible for a powerful beam of light to be projected in any direction at will.

Speed-Indicators.

Motoring as a pastime is so much enhanced by the possession of a speed-indicator that it is not surprising to

AT OLYMPIA.—View of the Anglo-American Oil Company's Stall. On the right, in the glass case, is a magnificent model of ss. "Narragansett," one of the steamers which bring Pratt's motor spirit to this country. This boat is the latest addition to a fleet which is owned by the Company, and some idea as to the magnitude of the oil trade—in which petrol is a factor of ever-increasing importance—may be gathered from the fact that this ship alone has a tonnage of 10,500, and a tank capacity of three million gallons.

crowd of evening sightseers whose interest in automobilism is mainly confined to the surreptitious blowing of horns wherever and whenever it gets an opportunity. Luckily for the peace of other stallholders, however, those who displayed motor horns mostly kept the operative part on their own side of the counter this year, where it was well out of the way of an easily-tempted public. With one or two exceptions, therefore—notably the case of a new kind of motor wind instrument, which gave forth its variegated notes upon the least provocation—such exhibits were no longer the nuisance that they have been known to be in the past. Each year brings its batch of novelties, and on this occasion there was an exceptionally good show of new inventions, many of which appeared to be *bona fide* attempts to supply long-felt wants.

Tyre Repair.

Tyre repair forms such an important feature of motoring that accessories connected with the art deserve close attention, especially if they are designed, as are the new levers brought out by Lacoste and Co., to facilitate the single-handed removal and replacing of tyres. These levers are very ingenious, and although they may not appeal so strongly to the expert—who always prefers few tools to many—they at least reduce the manual labour to an extremely small minimum, and even if somewhat slow, they are at all events sure, so that anyone might tackle a very stiff tyre single-handed with every chance of easy success. Pumping up a tyre is under any circumstances a laborious process, but many motorists must have thought that it would be more endurable if only the pump itself could be got into a more convenient position, or were made in a form less liable to produce backache. With the idea of overcoming these drawbacks to the ordinary plunger pump, the United Motor Industries have put on the market a new model which is operated by rotating a crank. It is a compact appliance, and it is constructed so that it may be instantly attached to brass clips which are permanently fixed to some convenient place on the car. In order to make it easier to work, the crank-handle is adjustable so that the leverage may be

AT OLYMPIA.—The Stand of the Continental Tyre Company, which was unique by reason of the huge tyre model which was erected extending across a large portion of the exhibit.

find that such a firm as S. Smith and Sons, the famous watchmakers, have fitted fifteen hundred of their well-known indicators during the past six months alone. Moving with the times, too, they have this year introduced a new instrument combining a speed-indicator, speed-recorder, and eight-day clock. It is one of the neatest devices of its kind which we have seen, is compact, useful, and not too obviously a tell-tale; for the little chart is inside the case, where it is perfectly accessible to those who know, but well out of the inquisitive's sight. Lacoste and Co. also introduced a new speed-indicator—the "O.S."—of what may be termed the "Foucault" type, for it operates by reason of the eddy-currents induced in a copper disc by the rotation of a permanent magnet. We hope to be able, very shortly, to include a description of this instrument in our series of articles on Speed Indicators, but for the moment it will suffice to say that it is extremely compact and of very neat appearance, as, indeed, all dashboard fittings should be. There was another new speed indicator on Davenport and Co.'s stall, which differs in action from the ordinary types, in that it does not perpetually indicate

implements displayed by the numerous assistants—all of whom, it may be remarked, have a personal interest in the business. Practically everything that is worth its place, either of English or foreign manufacture, finds its way to this famous house, for Mr. Melhuish makes frequent tours abroad, as well as nearer home, in search of novelties for the English market, and rarely returns without something of real value. For motorists' use, the speciality of this firm is a leather hold-all, which is fitted with a variety of useful tools, and is ingeniously constructed so that each is independently secured by the same straps which fasten the ends of the leather case. One of the recent additions is a strongly-made little vice, specially constructed for attaching to the step, and for those who have a workshop of their own, the light adjustable stock for holding any size of screw tap is a distinct improvement on the old type.

Electrical Accessories.

One of the most pleasing novelties this year was the electric telegraph on Messrs. S. Smith and Son's stall. Such an instrument is, of course, only really required by

AT OLYMPIA.—Messrs. Melhuish's "Branches" at the Exhibition. On the left is a view of the stall in the Gallery, where this old-established firm displayed a wonderful collection of small hand-tools, and on the right is their other stall in the Annexe, where the machine tools were shown.

the speed of a car, but can at any time be brought into operation by pressing a button on the case. In principle, too, it is unusual, for the speed is indicated by measuring the distance travelled in a given time. One of the chief advantages claimed for it is that it enables an exceptionally slow drive to be employed. As at present constructed, the flexible shaft is driven by a worm and wheel, and the indicator is combined with a clock—the same dial being used for both purposes.

Tools.

Of all the accessories which a motorist carries on his car, his tool kit should be the most perfect, for that alone has greater capabilities for saving his time and temper than anything else. In the motor world, or, indeed, outside it, no firm of tool merchants is better known or more widely respected than Messrs. Melhuish, who opened what was, both in size and equipment, practically a branch establishment in the gallery during the exhibition. It would be quite impossible to give any idea of the vast collection of tools which were on view, but certain it is that almost every visitor stopped to look and most of them stayed to buy, so well were the various

those who travel in enclosed carriages; but for them it is in the nature of a necessity, and quite a number of the cars in the main hall were, we noticed, fitted with it. The latest model has a very complete set of signs, such as "stop," "faster," "1st to the right," and so on, and the connections are so made that when the button is pressed slightly a red lamp is illuminated against the required sign. Should the driver fail to notice it, however, his attention may be attracted by pressing the button harder, which rings an electric bell.

Ignition is not yet so entirely accomplished by magnetos—although the large number of these machines employed, notably of the Simms-Bosch type, was a feature of the Show—that motorists have lost their interest in accumulators and the attendant electric equipment for this type of ignition. On Van Raden and Co.'s stand were the extremely interesting woven glass accumulators which this Company manufacture at their Coventry works, and, as usual, there were also several little novelties in the way of pocket voltmeters and the like, which are especially useful to motorists. One of these, in particular, attracted our attention—it was a small voltmeter and ammeter combined in a neat wooden case.

When closed, there is no outside terminal of any description, for the flexible lead, common to both instruments, winds up on a spring drum, and the stationary terminals are recessed below the level of the wood. The case is provided with a swivel lid, however, which, when opened in one direction projects the terminal of the ammeter, but when turned in the other direction brings the voltmeter terminal into use, thus making it impossible to employ the wrong one, provided that the case is opened correctly.

Fuel and Lubrication.

There are two things which a motorist must take very much for granted—his fuel and his lubricant. Both, however, are of the very gravest importance to the well-being of his car, but neither of them appeal very directly, at an Exhibition, to the actual user. And yet two of the most interesting shows in the whole of Olympia were the stalls of the Anglo-American Oil Company and the Vacuum Oil Company—the former controlling the deservedly popular Pratt's Motor Spirit, and the latter the equally famous Vacuum lubricating oil. What would have appealed to anyone visiting the stand of the Anglo-American Oil Company, however, was a magnificent model of the ss. "Narragansett," the latest addition to the company's large fleet of tank steamers. It is registered for 10,500 tons, and will carry no less than three million gallons of oil in its enormous tanks. In addition to this model were several excellent photographs of the extensive works where the petrol is stored and canned ready for the consumer, while specimen glasses showed the uninitiated at a glance each stage in the evolution of petrol from crude petroleum. It was an interesting show, and it gave the motorist an excellent opportunity of making a bowing acquaintance with the spirit which he uses so freely, but as a rule professedly knows very little about. No less interesting, and of a very similar kind, was the stall of the Vacuum Oil Company, where the inquisitive

might see tubes full of liquids, some translucent, others densely opaque. One and all, however, are for the same purpose—to reduce friction—and each does its work by the same means—the interposition of a liquid film between the sliding surfaces. And yet there is all that difference between the various oils, and the average motorist may well be excused if he draws the line at forming a too definite opinion of his own on which he should use. That is indeed the wisest conclusion at which he can arrive, for lubrication is a field for experts only, and the safest plan is to trust to the recommendations of such men. No firm has given more attention to the requirements of the motor industry in this respect than the Vacuum Oil Co., and the result of their experiments has been a range of standard oils which meet the requirements of all the cases with which they have yet had to deal. Motorists are principally acquainted with three of these, which have hitherto been known as "No. 1," "N," and "No. 2," but will henceforth be called "A," "B," and "C," respectively. The first (A) of these oils is for multi-cylinder engines, the second (B) is for single-cylinder engines, and the third (C) is for enclosed gearing. "No. 3" and "Heavy R" remain under the same names.



MOTOR BOATS AT OLYMPIA.

THERE were more boats shown this year than on any previous occasion, and they occupied quite a large portion of the annexe. On the whole, however, it is questionable whether, as the representative exhibition of motor craft, it was a really successful show, or, indeed, ever will be so long as it only forms such a minor part of another exhibition. Visitors at Olympia chiefly went to see the cars, and if they took a look at the boats, in passing, it was not generally with a very definite idea of purchase. Some seemed to think it too early, and others, more interested in river launches, were doubtless deterred by the effect of the new regulations which now so greatly hamper the users of pleasure craft. In fact, the laborious edicts of the Thames Conservancy appear to have put motor boating on the Thames under a pall which may be likened—having due regard to present circumstances—to that which overshadowed the "pastime" of motoring before the Act of 1896. Neither was there any great parade on the part of the manufacturers of their having constructed the equipment of their boats in accordance with the technical requirements of the Conservators, as laid down in the new bye-laws. Several of the principal exhibits were, as a matter of fact, the actual boats entered by the respective firms in the Motor Yacht Club's Reliability Trial, but these are, of course, constructed with a view to possessing some sea-going capacity, and are not altogether of the kind which find favour on the river.

For those who really visited Olympia in order to acquire a motor boat there was an excellent selection, even although several well-known firms were absent. Quite a range of sizes, too, was available, the smallest being the Mitcham Motor Company's little 12-ft. dinghy, fitted with a 1-h.p. F. and B. engine of the two-stroke type, and provided with a reversible propeller. For thirty pounds, the modest "would-be" motor yachtsman could thus have started his nautical career as owner and skipper of a self-propelled boat. Those aspiring to something more substantial, and anxious for a deck to pace, had an excellent opportunity of judging the merits of the equipment of S. F. Edge and Co.'s famous Napier

AT OLYMPIA.—A 100-h.p. marine engine constructed by the Simms Manufacturing Company. All the valves are above the cylinders under the domed covers shown in the photograph, and a single cam-shaft passing across the top is employed to operate them.

AT OLYMPIA.—Panhard II. in her tank. This boat is built on the Saunders principle and has a three-cylinder 8-11-h.p. Panhard engine with the new Saunders reverse gear. Her sister boat, Panhard, was shown by J. E. Hutton, Limited.

Major. Indeed, this boat was unquestionably the *pièce de résistance* of the annexe, and, as a side show, it offered more attractions and less obstruction than any other in the building. She has remarkably good lines, even out of water, when most boats appear ungainly, and of course her sea-going capabilities are now so widely known, through her recent voyage to the North, that further reference to them would be superfluous.

Racing boats seem to obtain a greater individuality through their successes than do racing cars, probably, it would seem, because they are endowed with names of their own. Thus there was a sense of recognition in seeing Dietrich II. on Jarrott and Letts' marine stall, although it is, we believe, the first time that this boat has hitherto crossed the Channel. She is an interesting craft, and remarkably roomy too, for a fast cruiser. Built on fine lines, the engine is placed well forward under a hurricane deck, so that the propeller shaft is nearly horizontal. It was interesting to compare the propeller on Dietrich II. with those shown on the Thornycroft stand. Each represents a distinctive type, and although there is no unanimity in propeller design—nor any likelihood of it under the present confusion of ideas—yet the narrow tapered blades of the Dietrich II. propeller are essentially French at the present time, just as the squat oval lines of the Thornycroft propeller may be justly accepted as the prevailing British type, merely because it is the product of that famous firm. Many and various are the "designs"

of propeller which inventors devise, in the fond imagination that they will revolutionise marine propulsion; there have been propellers which utilise only the tips of blades set on the periphery of an enormous boss, and others in which the blades are reduced to practically nothing but their roots. Each type has had its advocates, who have invented elaborate mathematical proofs of the perfection of their own ideas. At Olympia there was also a new propeller, which we do not recollect having seen in a material form before; it is the invention of Dr. Truss, and is quite different to those of orthodox form. Owing to the absence of any representative on the stall who knew anything about it, however, we are unable to give the inventor's ideas on the subject at the present time, but it is apparently designed on the principle that a complete helix is likely to be more effective than merely part of one, and the two "blades" are, therefore, continuous

like the thread of a screw, each making a complete convolution about the boss. At each end the blades taper down towards the axis, so that when revolving the propeller would have a spherical appearance.

There has been a large amount of originality, too, in the construction of hulls for small boats, while, of course, the design—having always to suit some particular case—is seldom twice alike. This year the pressed-steel boat shown by the Seamless Steel Boat Company was an interesting novelty, although pressed-steel boats are not, in themselves, new. Each side of the boat is pressed from the sheet, and the edges are joined by riveting to a bulb girder forming the keel. Enormous machinery must be used for this purpose, yet boats are, we understand, made in this manner up to 50 ft. in length; it is unlikely, however, that the construction will become generally used—although it has great merits for tropical climates and is immune from damage through fire—because once the "lines" and sections of each standard length have been decided upon, they have to be adhered to for all types of craft on account of the great expense of making different dies. Corrosion is popularly supposed to be a drawback to steel hulls, but this is, as with any other metallic substance in water, merely a question of paint.

Another boat having a steel hull was shown by Meinhardt and Co. It was a cruising cabin-launch 35 ft. long, made of Siemens-Martin steel, with flush-joints and countersunk rivets. In appearance, therefore, it could not be detected from a well-finished, carvel-built

AT OLYMPIA.—De Dietrich II.—The high-powered racing launch, fitted with a De Dietrich Engine, which has, during the past season, given such a good account of itself in Continental waters. This boat is in the Marine Section of the Olympia Show.

AT OLYMPIA.—Component Parts of a Thornycroft 24-h.p. Marine Set, showing the Engine coupled up to its reverse gear, with the Petrol Tank, Silencer, Propeller, and other important parts alongside.

wooden hull. Quite one of the best known forms of construction is the Saunders system, in which the diagonally arranged timbers are sewn together with copper wire. It makes an extraordinarily sound job, and being somewhat flexible as a whole, is not easily damaged by shock. Panhard II., a graceful launch, which floated in a large tank on Panhard and Levassor's stand, is built on this principle, and is the latest product of the Saunders yard. Placed well forward, the 3-cylinder 8-11-h.p. Panhard engine is set as low in the hull as it is possible to get it, in fact, the hull section at this point is largely governed by the dimensions of the engine, although it does not go so far as to form a distinct trough in the way that was done on Lord Howard de Walden's racer, "Napier." Aft, the floor runs up to the water line, and a good sized propeller has been fitted without unduly sloping the shaft. Panhard, the sister boat, was exhibited on J. E. Hutton's stall.

For those who require a good open cruising launch, the Thornycroft boats were excellent examples, but as they were actually part of the Thornycroft "fleet" in the Reliability Trials, and were described by us at that time, further reference is unnecessary. On the Wolseley Company's stall, too, was a fine mahogany cabin launch, 35 feet over all, and fitted with a 50-h.p. Siddeley engine—altogether a powerful, roomy craft for general use.

Another cabin launch worthy of special mention was the 25 foot Brooke boat, which was remarkable for its extensive accommodation compared with its size. Constructed of teak, the cabin is placed forward under a raised hurricane deck, similar to that used on the Brooke racer, so the boat is well designed with a view to being useful in all weathers. As then equipped, it had a 3-cylinder 12-h.p. Brooke engine, but, as a type, the hull seemed suitable for more powerful machinery if required. Of small moderately-priced boats there was a fair selection, but those on the De Dion Company's stand were particularly attractive; since one of them figured in the Reliability Trials, they are already familiar, for the other was almost a sister boat, differing only in length and in having a mahogany hull.

Marine petrol engines are receiving more and more attention from automobile engineers, and several well-designed sets are now on the market, notably the Yarrow-Napier, Iris, Thornycroft, Blake, Fiat, Gardner, Parsons, Scout, and Buffalo. Among the engines of larger power were the Yarrow-Napier, Simms, and the Ailsa Craig. On the Simms engine is a very accessible construction of overhead valve gear, while the peculiar features of the Ailsa Craig are the tangential setting of the cylinders relatively to the crank-shaft, and the square water-jackets. Although not peculiar for high power, the Thornycroft gas engine (Capitaine system) was perhaps the most interesting of all, not only because it uses suction-producer gas, but also because of its original construction.

Much attention is now being given to the design of compact and efficient reverse gears. Thornycrofts have designed a new type of their own, and Messrs. Saunders have introduced a most ingenious device which, while being, *au fond*, of the epicyclic type, combines a system of metal cone and positive jaw-clutches for the purpose of preventing slip, and is also so arranged that it is impossible to introduce the reverse before the propeller has stopped rotating. Owing to the difficulty of obtaining reverse gears to suit the various sizes of their engines, Messrs. Gardner have this year made their own; it is of the epicyclic type, operated by internal expanding and external brake-bands, but its features are rather in the nature of strength and reliability than in originality of construction, although the cam action for working the clutches is ingenious and simple.

AT OLYMPIA.—View of the "Capitaine" Gas Engine, constructed by Messrs. Thornycroft and Co. for marine purposes. The engine is of an entirely novel design, but its principal features, as also those of the "Capitaine" Suction Producer, have already been described by us. A two-cylinder engine of this type was exhibited at the Show.

The Automobile Club Annual Dinner, in the Great Hall of the Hotel Cecil, on Friday, November 24th, when the Hon. Arthur Stanley, Chairman of the Club, presided.

THE A.C.G.B.I. ANNUAL DINNER.

THE Annual Dinner of the club took place in the large hall of the Cecil Hotel on Friday, November 24th, the Hon. Arthur Stanley, M.P., presiding. Accommodation was provided for 564 guests, all of whom, with a few exceptions, were present, including the following:—His Excellency the United States Ambassador; the Right Hon. Lord Suffield, G.C.V.O., K.C.B.; Major-Gen. Sir L. J. Oliphant, K.C.B.; Col. H. C. L. Holden, R.A.; Prof. von Herkomer, R.A.; His Excellency the Greek Minister; Mr. Arthur Lee, M.P.; His Excellency the Chinese Minister; the Right Hon. C. Stuart-Wortley, P.C., M.P.; Sir Boverton Redwood, D.Sc.; Sir Albert Rollit, M.P.; Lieut.-Col. Mark Mayhew; the Right Hon. Earl Russell; Capt. Sir T. C. Wroth Lethbridge, Bart.; Messrs. A. F. Bird, Hardinge Cunynghame; Major-Gen. F. W. Benson; Major F. Lindsay Lloyd, R.E.; Brig.-Gen. Ruck; Sir F. Dixon-Hartland, Bart., M.P.; Messrs. R. Hancock, E. Manville, R. S. Erskine, Frank H. Butler, H. Favarger, G. C. Ashton Jonson, J. F. Ochs (vice-chairman), V. Ker-Seymour, H. Weguelin, E. K. Purchase, J. S. Mallam, Frederick R. Simms, Comte de Lavallette, General Becker, Mr. W. Rees Jeffreys, Sir Edgar Boehm, Bart., Messrs. E. M. C. Instone, Dugald Clerk, T. H. Woollen, the Hon. C. S. Rolls, Messrs. C. E. Shaw, Stanley Spooner, W. Ballin Hinde, Lord Royston, Messrs. Frederic Coleman, Walter White, J. A. Holder, Col. Challoner Knox, Lieut.-Col. Fox, Messrs. T. G. Chambers, F. S. Philipson-Stow, J. S. Critchley, Colonel Kinloch, Messrs. J. D. Siddeley, W. B. Gentle, Lyons Sampson, G. T. Langridge, Claude Johnson, Dr. Charles Firth, Messrs. R. E. Phillips, T. W. Grace, Robert Todd, S. Straker, Sidney Smith, Captain G. H. Dean, Messrs. R. J. Smith, J. R. Nisbet, J. Allan Baker, M.P. (Chairman Highways Committee, L.C.C.), Sir Hiram Maxim, Mr. W. Worby Beaumont, Dr. P. P. Whitcombe, Messrs. C. D. Rose, M.P., E. H. Cozens-Hardy, J.P., Major Kingsley Foster, J.P., Mr. F. P. Armstrong, and Mr. J. W. Orde (secretary).

The loyal toasts having been duly honoured,

Sir Boverton Redwood, in proposing "The Navy, the Army, and the Auxiliary Forces," announced that the Duke of Sutherland had consented to assume the position of Commodore of the Motor

Yacht Club. The club had obtained the use of the late Admiralty yacht "Enchantress," which would be moored in Southampton Water as a yacht house, and they were hopeful of being able to bring about the formation of a marine corps of motor volunteers, who might be of use to the Navy in time of war.

Mr. Arthur Lee, M.P. (Civil Lord of the Admiralty), in returning thanks, paid a well-merited compliment to Sir Boverton Redwood, who, he said, was their main lubricator, and one that was not constructed on the forced-feed principle, because he had always given to them his valued services ungrudgingly and without remuneration. He said there was one direction at least in which the motor engineer could render great and much-needed service to the Navy. He referred to the internal combustion engine for naval purposes. If they could design and produce a heavy oil engine which would be capable of being easily started, and would be easily reversible, without the introduction of compressed air, if possible, which would be fairly silent and free from complications, they would have supplied what was a keenly-felt want in the Navy. They wanted engines of this kind, from 50 to 300-h.p., for the auxiliary machinery of their ships, their picket boats, and launches; and if they could produce a heavy-oil engine, with sufficient power per cylinder to replace the 7,000-h.p. engines of the destroyers, and the 30,000-h.p. engines of the "Drake," for instance, the Admiralty would gladly build them to their design and give up steam for ever. In so doing, over a million sterling a year in the wages of stokers alone would be effected, besides many other acceptable economies.

Major-General F. W. Benson, responding for "The Army," thanked the members of the Motor Volunteer Corps, who had always come forward in the most patriotic manner to help them, and practically teach them, the value of the motor for the training of troops in the peace manoeuvres. They had now their Mechanical Transport Companies, and they had a Mechanical Transport Committee, which sat constantly at the War Office, and investigated all new inventions; they had a School of Instruction at Aldershot, where they turned out as good drivers for the Army Service Corps as the Army could want to have. They had set up works at Aldershot, and carried out their own repairs, and anyone who witnessed the last manoeuvres at Aldershot must have seen their travelling workshops executing all the repairs which were necessary

at that time, and doing the work most efficiently. If the Motor Volunteer Corps increased so much that they had 5,000 motors, it would represent a very formidable and efficient force to assist in repelling any raid or invasion that might happen.

Lieut.-Col. Mark Mayhew, who responded for "The Auxiliary Forces," said in regard to Major-General Benson's suggestion of a Motor Volunteer Corps of 5,000 members, that he only hoped that the War Department would some day give them an establishment like that, and that the Automobile Club and the Motor Union would be good enough to fill it.

Mr. Alfred Bird proposed the toast of "The Houses of Parliament," and said, by the law which the House of Commons passed in 1903 one of the most Gilbertian positions had been created, as it had furnished them with a set of magistrates without number appearing in the dock: Without being in court to sentence offenders, they were there as offenders themselves to be sentenced. He had great hopes as to the results likely to ensue from the Commission now sitting, who, he felt confident, would bring out a report on which a workable Act of Parliament might be based, and he was sure they could count on the same measure of fair play for automobilism in the House of Commons which they could count on from any other body of Englishmen.

Lord Suffield responded for "The House of Lords."

Mr. C. B. Stuart-Wortley, M.P., in responding for "The House of Commons," said that Parliament would do well to leave the automobile to what the late Sir William Vernon Harcourt used to call "the masculine sense of common law." The automobilist who had shown all possible care for himself and other users of the road, and had avoided, as far as possible, all danger to the public, and who, nevertheless, was found to be travelling at about 20½ miles per hour, was a person who has not been left in a satisfactory position by the law as made in 1903. He hoped that the Parliaments of the future would not be blind to the interests of the automobilist, and to the progress of science and the irresistible march of a great people towards constant improvement. He trusted that it would occupy itself by considering this problem to the exclusion of less useful, though, perhaps, more ambitious schemes.

Sir Albert Rollit, M.P., in proposing the toast of "The Club," recalled, in his happiest vein, some amusing stories. The "road-hog," he said, was an individual whom they need never help or support; the "scorcher" was a debaucher of true pleasure. The "scorcher" was more dangerous on the road than the ancient high-

wayman. The highwayman, at least, gave an alternative. He said: "Your money or your life." But the scorcher did not give a choice.

The Chairman (the Hon. Arthur Stanley, M.P.), in acknowledging the toast, said that he should like to alter his estimate of a few days previously of two millions sterling as the amount of orders already placed for cars for the next four months to about four millions. He said that the Automobile Club not only existed itself, but had created strong bodies in the Motor Union and the Auto-Cycle Club, and last, but not least, the Motor Yacht Club. All these organisations were working in conjunction with the club with a single mind towards the advantages of the great motor movement of the country. They were in close alliance with the Society of Motor Manufacturers and Traders; and he took that opportunity of congratulating that Society most heartily on the great success which had attended their show this year. After referring to the enormous amount of work done by the Club Committee, with its sixteen sub-committees dealing with most intricate and most technical subjects, all run by gentlemen who gave their time and services voluntarily to the cause without reward, and, he was afraid, often without praise, he expressed the hearty appreciation which they all felt for the services of their excellent and indefatigable secretary, Mr. Orde.

Mr. James F. Ochs, Chairman of the House Committee, proposed "The Guests."

Mr. Whitelaw Reid, the American Ambassador, who, on rising to respond, was received with three times three, said he should like to see the policeman, who so carefully looked after the occasional automobilist who tried to run a few seconds under time in going on a clear road where there was no possible obstruction or danger to anyone, give a little more attention instead to teaching *everyone* on the road the law of the road, to the carter who meanders along with his horse on the wrong side of the road, and to the carts with big loads of hay bulging out from either side which persistently took the middle of the road and held it. He was equally averse to the drunken or crazy chauffeur. The oftener the police arrested that man, and the harder the magistrate punished him, the better for every man who used an automobile, and certainly the better for the Automobile Club. No matter whether they were maniacs or irresponsible, they were enemies of the whole cause of the automobile.

Earl Russell proposed "The Press," and "The Chairman" was in the safe hands of Col. H. C. L. Holden, R.A.



MOTOR UNION ANNUAL DINNER.

THE First Annual Dinner of the Motor Union of Great Britain and Ireland took place on Wednesday, last week. The Hon. Arthur Stanley, M.P. (Chairman of the Motor Union), presided, and the list of guests included the following:—

Field-Marshal the Right Hon. Earl Roberts, President of the Berks A.C.; Marquis of Ailsa; Vice-President of Scottish A.C.; Lord Suffield; Earl of Leven and Melville; J. Fletcher Moulton, K.C., M.P.; Col. R. E. Crompton, C.B., Chairman Motor Van and Wagon Users' Association; E. Manville, M.I.C.E.; Sir J. Thornycroft, F.R.S.; Hon. C. S. Rolls; W. Worby Beaumont, M.I.C.E.; S. Straker, President of Society of Motor Manufacturers and Traders; Col. H. C. L. Holden, Vice-Chairman of the Motor Union; A. P. Maybury, County Surveyor of Kent; Claude Johnson; E. M. C. Instone; Chas. Hardy, President Notts A.C.; Major Portal, Chairman Berks A.C.; Capt. Cole, J.P., Lincs. A.C.; G. T. Langridge, Chairman, General Purposes Committee Motor Union; R. J. Smith, Hon. Sec. Scottish A.C.; R. W. Buttemer, Hon. Sec. West Surrey A.C.; F. B. Cawood, Hon. Sec. Sheffield A.C.; Booth Granger, Hon. Sec. Nottinghamshire A.C.; W. Rees Jeffreys, Sec. Motor Union; C. M. Kenyon, Hon. Sec. Kent A.C.; W. L. Lorkin, Hon. Sec. Southern Motor Club; Dr. C. K. Moseley, Hon. Sec. Eastern Counties A.C.; Capt. D. Hughes Morgan, Chairman North Wales A.C.; F. Miéville, Sec. Sussex County A.C.; A. Roberts, Hon. Sec. Blackheath A.C.; T. H. Ryland, Hon. Sec. Midland A.C.; P. A. Sharman, Hon. Sec. North Herts A.C.; Chas. Smith, Hon. Sec. North London A.C.; F. Straight, Sec. Auto Cycle Club; Col. W. Waring, Hon. Sec. Berkshire A.C., Reading; Dr. J. Hopkins Walters, Vice-Chairman, Reading; and the following members of the Committee:—E. H. Atchley, R. W. A. Brewer, H. A. Cunis, R. S. Clifford, jun., A. A. Dale, A. Scrase Dickens, C. H. Dodd, F. Donnison, C. A. Elgood, E. Faithfull, W. Ballin Hinde, A. B. Hearn, G. C. Ashton-Jonson, T. E. King, Capt. L. A. Kingston, W. J. Leonard, D. Mackenzie, A. McAlpin, J. R. Nisbet, A. E. Newton, Col. Parrington, Dr. E. L. Kowe, Stanley Spooner, J. D. Sideley, G. F. Sharp, F. Smith, V. Ker-Seymer, O. Thompson, O. P. Type.

An excellent dinner having been disposed of, and the loyal toasts being duly honoured,

Mr. Fletcher Moulton, K.C., M.P., in proposing the toast of the evening, "The Motor Union of Great Britain and Ireland," said he was qualified for doing so upon the ground that he, as an ardent, but extremely unpatriotic and lazy motorist, was too delighted to find that this was a body of 10,000 people hard at work protecting motoring, and saving him the trouble of doing anything in that way. He was well enough versed in the currents which sway public life nowadays to know that to defend a sport which commenced, not by being most agreeable to the world at large, but by being strictly limited to those who were wealthy was no easy thing; it required a good deal of democratic support to free it from danger. The body he was addressing was, indeed, thoroughly democratic, and it had 10,000 members. It was a democratic body because motorism itself had become democratic. The days when none but the wealthy took an interest in it were long gone by. When he suddenly found his cab stopped for a moment in the street because a pushing motor 'bus had caught it up from behind and was running on ahead, he put up with the inconvenience, feeling that that crowded 'bus contained nothing but converts to the advantage of motor locomotion. And when in the country constituency which he represented, he heard the country doctors discussing as to what was the best motor to be out in all weathers and at all hours, he said to himself motoring is becoming recognised, not only as a plaything, but as a very serious part of life. The world realised the advantage of a servant like the motor, which, so long as he had got no work to do, passively maintained his fast without a grumble. Well, motorism then had shown itself to be useful not only to the far-seeing people who realised what its capabilities were, but to that far larger class of people who did not appreciate a new invention until it had come within the sphere of their own life, and they had felt its advantages themselves, and then they became more tolerant towards it, which was a stage towards enthusiasm for it. The same cycle was passed through with regard to the introduction of the bicycle. At first "the scorcher" rendered it quite as unpopular as the motor was

three or four years ago. This was illustrated by the man who went to insure his life, and had a long list of extremely searching, impertinent and unpleasant questions put to him in order to see whether his life was a life which such an extremely respectable office could accept, and he was answering them with more or less success when the question was put, "Do you ride the bicycle?" Triumphantly he said "No!" "Ah!" said the doctor, passing him back his proposal, "we don't insure pedestrians!" Jokes like that showed that cycling to the quiet, non-cycling public was a terror—a terror such as motoring was a few years ago. But as soon as cycling became a national sport—when, whenever you were motoring on a Saturday or Sunday, you saw clusters of bicyclists looking exactly like meteoric stones, which cluster together to form comets' tails, and go through endless space, it showed you that it had become an enjoyment of the people, and one which they were prepared to protect by their influence. And so with motoring. Motors were in every form becoming useful, not only to a small class, but to the people at large. The task of the Motor Union was, however, not a light one—the victory was not gained. The motor industry, and motoring itself, was at a very critical period of its existence. The Act of Parliament obtained some two years ago was an extraordinary achievement at that time. He thought that motorism got that extremely favourable law, not because it was well known, but because it was so little known that it was able to get that passed without the opposition, which at a later period it certainly had met with, and would meet with. The influence of bad legislation was not to be despised. In his time he had seen two great industries leave England through bad legislation. One was the electrical industry; the other was the motor industry. While other people were allowing motor cars, and getting hold of an industry which now had an output of many millions in this country, we were allowed to go on a motor car provided we went at three miles an hour, and had a man with a red flag ahead of us. And the influence of bad legislation on the motor industry was only very partially undone even at this present day. There had been a Commission appointed to decide what the form of the new Act should be, but it would require a very considerable amount of unanimity in Parliament to pass any new Act, and if no new Act of Parliament was passed, they would get back to a state of things which he was sure the whole of the Motor Union would consider deplorable. Being such a critical moment, he felt inclined to try to give them a little bit of advice. He was a motorist, and he thought motoring magnificent; but he thought it looked rather best from inside. It was extraordinary how unanimous people inside motors were about the pleasure of motorism. He did not find the same unanimity on the part of people who were outside—the people who were in the streets; and, after all, although the fact that there were 10,000 members in the Motor Union cheered his heart, yet, being accustomed to count the number of voters in various parts of England, he did not feel that they had a majority of the constituencies with them. He felt, therefore, that they must realise that there were not legitimate, but comprehensible grounds for their not being very popular. And he wanted them to feel that in their efforts they must realise the necessity of considering, sympathetically, the objections that were made by the public at large to the use of motors. He said that in their own interest; but he thought he should have appealed to a higher interest than their interest, for his belief was that nobody who managed his motor as a gentleman occasioned any inconvenience to others, excepting by the dust he made. He did not believe in a well-managed motor being either a terror or an injury to the general public. He confessed that on a dusty day, when he was anxious to keep and cherish the idea that his existence was on the moral plane, he never looked behind his motor. He did not like his secret sins brought to the light of his countenance, and he must leave it to some ingenious member of the Motor Union to devise some means to lessen that which was an unmitigated nuisance to the world at large, and which, so far as he could see, was essentially bound up in motoring in every country which had a climate worth motoring in. They must be prepared to make concessions without sacrificing principle. For instance, in regard to drivers. That people should take on themselves the responsibility of driving, whether they were professional drivers or gentlemen, without having gone through the requisite study and practice was a thing which ought not to be defended, and which, for the safety and comfort of the public, ought not to exist. Then there was the great question of speed limit. While he did not think it wise or sensible or effective to have a speed limit, on the other hand he did trust that those who represented them would not try to push principles so far as to suggest that the authorities should not have power to put a speed limit where the population or traffic was dense. He thought they would best succeed if they fought for no limit in the open country, but very free powers to local bodies, with the permission of some central body, such as the Local Government Board, to make by-laws

limiting the speeds. Subject, however, to the harmless provision that any such by-laws should last only for three years, and then should require to be renewed. For this reason. Motors were improving rapidly, and they could plead, therefore, that it would be wrong to have hard-and-fast limitations which could not be changed when the improvements were being made so fast. His real reason for wanting this provision was because he was certain that the fears of the public would pass away when they became accustomed to the matter. The public were like the horses, who, meeting the first two motors they shied, but the third they took no notice of. The public, in the same way, as they got more accustomed to the motor, would have less and less fear of it. He would advise them to avoid as far as they could everything being enacted in the statute. It should be left in a flexible and changeable form of regulations made by the local body, and frequently reviewed. He thought then that within a few years they would look back to the rigorous conditions under which they now motored with something like the scorn with which they now looked back on the three miles an hour and the man with the red flag in front. A great number of people were anxious to get rid of the speed-limit, and have only the condition that there should not be driving to the public danger. In regard to this the real difficulty was not the legislation, but its administration. And he regretted to say that the motor question had shown that there were men entrusted with the administration of the laws of this country who allowed themselves to be the victims of prejudice instead of sternly and impartially carrying out the law. Care should be taken that in trying to get free they should not hand themselves over more and more to the mercies of such people. To leave the question of driving to the public danger to be decided by a constable, was very much worse off than having a speed limit. For instance, no one would say that a disabled motor was going at 20 miles an hour; but a man might say, "It is driving to the danger of the public." And if you were at the mercy of evidence which was often given under prejudice, and accepted under prejudice, it seemed to him that a change of words made no difference. In the reforms they wanted there must be not only legislative reform, but there must be administrative reform. No fines inflicted by any bench of magistrates should in the least go in relief of the rates. The question of whether there was driving to the public danger should be made clear by legislation. Every Court ought to be obliged to take evidence as to what was occurring at the time, and the Court decide as to whether or not the driving under the circumstances was to the public danger. It should not be for a policeman to come and say "You were driving to the public danger." That was for the tribunal to decide. He had only to say what the facts of the case were, and the Court had to form its opinion on that evidence; and if they could compel that to be carried out, and they had a short and summary and practicable appeal as to whether the evidence given supported the finding, he thought the number of scandalous prosecutions would be diminished tenfold. In legislation he advocated avoiding, above everything, stern limits being fixed by an Act of Parliament. It was difficult to get Parliament to take time to pass an Act through. So that if an Act crippled them they might wait twenty years before they could get the Government to consider the grievance serious enough to decide upon giving sufficient time to the matter to have it altered. They should accept what they could get in the way of legislation, but use all their influence to so order matters that it should be possible to get the details of that legislation changed—to be under the influence of local bodies. And these bodies should not be distrusted. They might be bad to them to-day, but they would get wiser to-morrow, and when they got wiser they could carry out their new-found wisdom without waiting for Parliament to give time to confirm it. All their influence should be thrown into getting the securities put against the administration of those laws from the point of view of prejudice. In conclusion, he said his advice had been given as he thought that at this moment they must pull all together.

The Chairman, in responding, having referred to the compliment which had been paid them by the presence of their friend Lord Roberts, said that their difficulties must be surmounted by education. He meant the education that teaches us to be considerate for others. He referred to that education which teaches us that instead of giving little room we should give lots of room to that unruly animal the horse, and to do as Mr. Fletcher Moulton suggested, or rather, as he did not suggest, namely, to look behind you to see what dust you were making, and try to make a little less. It is in these matters that our education was going on, and he knew its beneficent effect was rapidly progressing, and he was certain it was owing to that that we might look for what he believed will very shortly be an improved state of feeling in the country as regards motoring. They must convince the public what the motor was and is going to be—to bring it home to their minds, if it had not been already brought home to them, that it was no longer a luxury of the rich, but was rapidly becoming a necessity of the

poor. In this great work of showing the public what a powerful factor the motor was going to be, it would be difficult to get an institution so capable and well fitted for the task as was the Motor Union—with its numerous branches and affiliated clubs throughout the country. It had the power, which no other institution possessed, of coming into touch with local needs, and of coming into touch with the people in the localities, and if, as he trusted it was, the education was going ahead fast, he thought it would be due to the Motor Union. He felt certain that all of them who were present would look back to that day and be proud of having had a part in these proceedings in early days, of having been pioneers in this great movement, and having done so much to raise the trade and the motor industry in this country to a level with and even higher than that of the rest of the world; and, further than that, that they would be proud of the part that they had taken in this great social revolution which, more than any measure that had ever been conceived by social reformers, would tend in the future to ease the burdens and alter the lives of the toiling masses who had so large a part in bringing prosperity to our country.

Mr. G. T. Langridge proposed the toast of "The Affiliated Clubs," which was responded to by Major E. R. Pardoe, Captain J. A. Cole, Mr. R. J. Smith, and Mr. R. A. Atkey, whilst the toast of "The Ministers of our Movement, the Roads, the Cars, and the Press," was very efficiently proposed by Lieut.-Col. R. E. Crompton, C.B., and responded to for "The Roads" by Mr. H. P. Mayburn (County Surveyor of Kent), "The Cars" by Mr. E. M. C.

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ONLY quite recently a splendid house-warming was made by Argylls, London, Limited, when a number of friends of Mr. Eustace Watson gathered together to wish him success in the new London undertaking. Last week the parent company, "Argyll Motors, Limited," held their Annual Dinner in the same room, at the Trocadero Restaurant, as the London branch. This annual function of the Argyll firm serves as a very pleasant reminder of the marvellous progress which has been made by those responsible for the building up of this extraordinary business.

Mr. W. A. Smith, who from the first has shown such confidence in the undertaking, has been well rewarded for his foresight, and in replying to the toast of "Automobilism," upon the occasion proposed by Mr. R. J. Smith, he was emphatic in regard to the wisdom of welcoming competition from the entire world. If they could not do better than their neighbours then they did not deserve the business. He thought that though we might at present be chasing foreign makers, it would not be long before they would have to chase us. Automobilism would bring about a regeneration of the public by introducing activity into every phase of life, particularly among pedestrians when moving about the streets and roads.

Mr. Alec Govan, in putting forward the toast of the "Argyll Representatives," as usual, kept the guests in continuous good humour by a string of stories of a piquant although appropriate character. As an example of the personal interest which the directors took in the Company's welfare, he drew attention to the fact that every member of the Board of the Argyll Company was then present at the gathering. They had helped by their work to build up part of the automobile industry to its present prosperous condition until he thought it was the envy of all other trades. At least he formed that opinion by one amongst many applications which he had received for employment from a man who had successfully managed five barges, three public houses, and a laundry, and who thought automobilism was a more promising field than any. He also mentioned the fact that the members of the Royal Commission on Motor Cars had visited the Olympia Exhibition on that very day, and whilst inspecting the Argyll stand expressed their astonishment at the enormous interests involved. Viscount Selby, the chairman of the Commission, was so impressed with the

Instone, and "The Press" by Mr. R. J. Mcreedy. Mr. Sidney Straker had charge of the important final toast, "The Chairman."

Automobile Mutual Protection Association.—At the meeting of the Council of the Association last week, Mr. E. Lisle in the chair, it was decided to pay ten guineas for affiliation with the Roads' Improvement Association, and to make a contribution of twenty-five guineas to the Legislative Fund of the Joint Committee of the A.C.G.B.I. and the Motor Union. Certain alleged infringements of patent matters were gone into and dealt with. Steps were authorised to obtain a length of several miles of main road for the purpose of conducting experiments with dustless materials. It was also determined to arrange for an examination of the Private Bills deposited for the next Parliamentary Session, and to take the necessary steps to oppose clauses likely to be detrimental to automobilism. In regard to the next General Election, it was decided not to ask Parliamentary candidates to pledge themselves with regard to motor car legislation, except that they should be asked to support the findings of the Royal Commission.

THE Society of Automobile Mechanic Drivers are holding a general meeting at 51, Brick Street, Piccadilly, on Monday next, December 4th, at 7.30 p.m. All mechanic drivers will be welcomed to the meeting, and cards of admission sent upon application to the Secretary.

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model to scale of the administrative building of the Company in Dumbartonshire, which formed the upper part of the stand of the Company's exhibit, that he said it was the biggest surprise he had had, and enabled him to grasp very vividly the importance of the industry and the resolution and enterprise of the men behind it. Mr. Govan, continuing, said that a big artistic building, however, did not necessarily mean good cars. It was what was behind that building. The directors and the management had, therefore, set themselves out to get the best of everything—workmen, tools, and materials—and to work at a minimum profit, relying on the quantity to pay for them. It was by their up-to-date machinery they were achieving their great success. Agents, he thought, might be compared with missionaries, as they were continually converting the man with money to the idea that he must have a car, and thus obtain health and unlimited pleasure, besides being the means of providing work to thousands of British artisans.

Amongst some interesting points disclosed at the gathering was the fact that the Company was established less than six years ago, and that for some time serious thoughts were entertained of relinquishing business, which at first was far from remunerative. The Board and management, however, stuck to their guns, and have had the satisfaction of seeing the Company emerge from the struggling stage and become a large and flourishing concern. The most significant development, however, was within the past twelve months since last Olympia Show, when soon after "Argyll Motors" was launched, the capital being largely over-subscribed, and the shares at the present moment standing in the open market at a substantial premium. The splendid new buildings which are now nearing completion at Alexandria will, it is hoped, be ready for occupation by the end of the year, and the works in full operation shortly after. The Company intend to devote the new works to the production of four-cylinder cars and commercial vehicles exclusively, the Bridgeton factories being retained for two-cylinder cars and for repairs, replacements, &c. At the present time over 1,000 cars are on order in the Company's books, representing more than half a million sterling, and the new factory will have its work cut out, up to at least the end of June next year, to carry out all the present orders for the supply of cars.

RACES, RECORDS, AND TRIALS.

statuette of Hermes inside it. The pedestal on which the Trophy is to be mounted will be 9 ins. in height, and is to be of enriched bronze, with seated figures representing Industry and Invention cast in full relief. This also is the work of a well known artist, Mr. Walter Gilbert, so that in all, the complete Trophy will be representative of the genius of three leading contemporary artists, while one of the finest works of the Italian Renaissance is at the same time reproduced. Mercury was the patron of many arts, particularly of working in metal, and, as the messenger of the gods, was also identified with speed. Hence, no doubt, the adoption of a statue of this deity for the Tourist Trophy. It will certainly be admitted that the Automobile Club—assisted by that indefatigable worker, Mr. Mervyn O'Gorman—has done its utmost that the Trophy shall be worthy of the occasion, and neither trouble nor expense have been spared. It is anticipated that the finished work will be ready to hand over to the winners towards the end of February.

Herkomer Cup, 1906.—The Bavarian Automobile Club have intimated that the trial for the Herkomer Cup next year will start from Frankfort-on-Maine. The route will be from that city to Munich, Vienna, and back to Munich, where it will finish. This announcement is not final, but indicates the trend of opinion.

Voiturette Competition.—The contest for voiturettes arranged by *L'Auto*, and of which we published details of the regulations in our issues of October 28th and November 4th, commenced on November 21st last at Suresnes, near Paris, and extended over six days, each day's run being to Gaillon and back. Twenty-two entries were received and thirteen actually weighed in and started, particulars of these being given in our table, together with their official numbers. On the first day the cars had a bad experience, snow being thick on the ground. Bad, however, as the roads were, some remarkably good performances resulted, the three De Dions, one driven by Lionel De Dion, being particularly noticeable, these getting through without losing a single mark, as did also one of the Lacoste cars (No. 16) and two of the Gregoires (Nos. 1 and 2). Two cars abandoned the contest, viz., a Lacoste (No. 22), and the Hugot (No. 14).

The second day the three De Dions again got through without a miss, followed in like fashion by the same two as the first day—the Vulpes and Nos. 17 and 22 Lacostes—all the eleven cars successfully covering the full course.

On the third day a little variation took place in the monotony of non-penalised runs, those with clean sheets being Cormier's De Dion, three Lacostes, two Gregoires and the Vulpes. The other two De Dions, having made a mistake in the time, were penalised for the amount in excess allowed under the rules, and thus spoil their otherwise splendid performances. The fourth day saw all the cars with no marks against them. The next day, the Gregoire car was heavily penalised through severe tyre troubles and delay, leaving only Cormier's De Dion and the Lacoste car with a clear run for the trial up to date. The sixth and last day of the regularity run was a break-up of all non-stops, through some miscreants who had evidently maliciously strewn the Paris-Mantes section of the road with huge bent nails, which played such havoc with the competitors' tyres that the whole question was placed before the judges for special consideration, and the afternoon run, it was determined should,

THE TOURIST TROPHY.—The Hermes of Giovanni di Bologna, at present in the Museo Nazionale at Florence, of which a golden replica, executed by Sydney March, will form the actual Tourist Trophy.

The Tourist Trophy "Trophy."—The actual Tourist Trophy which was won in the summer by the Arrol-Johnston Car Co., and is now gradually materialising, is going to be a very artistic affair. As our readers are aware, the Trophy itself consists of a replica in gold of the Hermes, by Giovanni di Bologna, in the Museo Nazionale at Florence, which is being made to the order of the Automobile Club by Mr. Sydney March, a well known sculptor, who has enjoyed the distinction of making busts of the King and Queen, the Prince and Princess of Wales, the late Pope, and Mr. Cecil Rhodes. The golden Hermes will be enclosed in a casket, of pierced damascene steel and silver work, designed by Mr. H. Wilson. The casket, which is 18 ins. high by 8 ins. square, can be opened so as to display the

under the circumstances, terminate at Mantes, as it was quite impossible for the competitors to hope to get back from there to Paris, except under equally distressing conditions as upon the outward journey. Prompt action was taken by those concerned in the trial, and a substantial reward offered for the discovery of the criminals who had so violated the laws of the highway. Probably special allowances will be made by the judges for this day's tyre mishaps. The concluding portion of the trial was on Monday, which was devoted to speed tests on the flat, on the hill, and to trials of starting and stopping efficiency.

The best time on the flat kilometre was made by Lionel De Dion of 1m. 40s. On the hill the Vulpes car was best in 4m. 5 $\frac{2}{5}$ s., and in the starting and stopping test over half a kilometre the Lacoste car (No. 16) was first with 57 $\frac{3}{5}$ s. In regard to the result of the reliability runs, the "Regularity Cup" goes to the De Dion Bouton team for their running over the 1,200 kilometres, the full distance of the trials, whilst it remains for the judges to decide the results of the whole trial, taking into consideration the very unpleasant episode of the cloud of nails which were strewn on the last day on the Paris-Mantes road.

VOITURETTES' TRIALS.—Particulars and Performances.

No., Car, and Driver.	Engine.			Tyres.	Weight in Kilogs.		Penalisation Marks.								Total* Marks and Order.
	Cylinders.	Bore and Stroke	Ignition.		Chassis.	Body.	Reli-ability Marks 5 days.	Level Kilom.		Hill Kilom.		500 Metres.			
								Time.	Marks	Time.	Marks	Time.	Marks		
								m. s.		m. s.		m. s.			
1. Gregoire I. (C. de Bosch) ...	2	80 × 99 accum.	Contl.	420	52	—	—	—	—	—	—	—	—	—	—
2. Gregoire II. (Renoncé) ...	2	80 × 99 accum.	Contl.	420	52	350	2 23½	216	7 36¾	1055	1 14½	86	1357	9	
3. Gregoire III. (Tavenaux) ...	2	80 × 99 accum.	Contl.	420	52	490	2 2	110	6 25½	702	1 4	32	844	8	
11. Gladiator I. (Reimers) ...	1	100 × 110 bat.	Dunlop	490	60	—	—	—	—	—	—	—	—	—	—
12. Demeester et Lamberjack (L. Demeester)	2	80 × 100 accum	Michelin	345	55	—	—	—	—	—	—	—	—	—	—
14. Hugot I. (Hugot) ...	1	90 × 110 bat.	Michelin	420	60	—	—	—	—	—	—	—	—	—	—
16. Lacoste et Battmann I. (Gachet) ...	1	100 × 120 accum.	Dunlop	500	70	0	1 42½	13	4 29½	119	0 57½	0	132	2	
17. Lacoste et Battmann II. (Thomas) ...	1	100 × 120 accum.	Dunlop	500	70	350	1 56½	84	5 3¾	290	1 9½	60	434	6	
18. De Dion Bouton I. (Cormier) ...	1	100 × 120 bat.	Dunlop	450	60	0	1 43½	19	4 36	153	1 5	37	209	4	
19. De Dion Bouton II. (Bardin) ...	1	100 × 120 bat.	Dunlop	450	60	195	1 48½	41	5 5	298	1 3	27	366	5	
20. De Dion Bouton III. (L. de Dion) ...	1	100 × 120 bat.	Dunlop	450	60	240	1 40	0	4 14½	44	1 6½	43	87	1	
21. Vulpes I. (Barriaux) ...	1	100 × 120 accum.	Electric	500	60	65	1 42½	14	4 5½	0	1 30	162	176	3	
22. Lacoste et Battmann III. (Gallet) ...	1	100 × 120 accum.	Dunlop	500	70	1165	2 2	110	5 17½	361	1 12¾	75	546	7	

All the cars have live-axle transmission except No. 14 which is by belt, and No. 11 by chain.

* For the level kilom., the hill, and 500 metres only.



Bogus Motoring Schools.—The sequel to the charge against George Stevenson, engineer, and H. McAllister, clerk, for conspiring to obtain money by false pretences from young men, who answered an advertisement inviting them to become pupils to learn motor driving and to be introduced to the motor industry, was enacted at the Clerkenwell Sessions on Friday of last week.

The judge—Mr. Loveland-Loveland, K.C.—after the jury had found the prisoners guilty, said the case was one of a cruel fraud on struggling men, and sentenced Stevenson to twelve months and McAllister to nine months' imprisonment.

Co-operation.—Messrs. Richard Melhuish, Limited, are amongst those old-established firms who, moving with the times, have thought it wise to take into partnership those associated actively with them throughout the business. The apportionment of the profits, beyond a certain amount, to the various work-people has been vastly appreciated and has brought about a remarkable discrimination in the conduct of the workmen, which is reflected in the admirable manner in which the firm's whole establishment is conducted. This is the first year in

which the new co-operative system has been in force, and we learn with very considerable gratification that the new arrangement has been of a most satisfactory nature to both sides, the first half-year's division of profits having shown extremely good results.

AT OLYMPIA.—One of the 10-12-h.p. Argyll Touring Cars, fitted with Side-entrance Body. This is the smallest of the numerous models made by this well-known firm, all of which were illustrated and described in our columns recently.

CORRESPONDENCE.

* * *The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.*

TOURIST TROPHY REGULATIONS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I am very pleased indeed to see Mr. C. Johnson, who initiated the Tourist Trophy Race, disagreeing with the policy which admits a steam car into this competition, and gives it a fifty per cent. advantage over the petrol car. It seems to me that the makers of steam cars might well say "Save us from our friends," when the Tourist Trophy Regulations widely advertise the fact that a steam car, to compete with a petrol car, has to be an abnormal consumer of petrol. Surely the steam car has some advantages which can be put against its petrol-consuming powers, and I certainly think that any competition in which the conditions vary for different competitors can only be misleading and unsatisfactory, and I agree with your correspondent in hoping that the rules will be altered so that it is a fair field and no favour for any competitor or type.

Yours truly,
S. F. EDGE.

Nov. 24th.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I take exception to the expression Mr. Claude Johnson uses in his letter to the JOURNAL last week—"admittedly inefficient"—directed, as it obviously is, at the White steam car. The White Steam Car Company deserve fairer play than this after their sportsmanlike entry in a competition which they knew they could not possibly win.

It is a matter of common knowledge that the White steam cars use more petrol per mile than some petrol cars of the same nominal horse-power, but they can burn the cheapest grade of petrol, and what they cost extra in fuel they save in the wear and tear of tyres owing to their lightness, even distribution of weight, and sweetness of running. After 8,000 miles experience, I firmly believe that the White steam car is not only the most silent and sweetest running car on the market, but the most reliable and the cheapest car to keep up. For a rival manufacturer to speak of it as "inefficient," seems to me, as it must to all other users of this delightful car, to argue a jealous fear of its real superiority becoming too widely known.

Yours truly,
G. C. ASHTON JONSON.

Pelham Crescent, S.W.
November 24th.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—In your columns I notice a letter from a correspondent protesting against steam cars being allowed a greater quantity of fuel than petrol cars, and referring to the possibility of an "inefficient" steam car winning the Trophy.

Therein I think he does an injustice to those steam cars which use paraffin as fuel, such as the Turner-Miesse and the Serpollet.

I suggest that the use of paraffin and other cheap fuels should be encouraged, as otherwise, unless fresh sources of supply of petrol are discovered, the cost thereof is likely to be increased at no distant date as the demand for petrol increases largely, as increase it must.

I take it that it is not the quantity in gallons that concerns the private owner so much as the actual cost thereof. The Turner-Miesse cars use paraffin as fuel, which is roughly half the cost of petrol, and therefore I claim that if a Turner-Miesse used two gallons of paraffin to one gallon of petrol required by a petrol car, it would not be fair to refer to the steam car as "inefficient" (as the correspondent in question does), for the total cost of the fuel would be less for the steamer than for the petrol car.

There are great advantages in the use of paraffin quite apart from its cheapness—less danger from fire and explosion, it can be obtained everywhere, even (at a pinch) at a country farmhouse miles away from the nearest town, as I have been able to obtain it before now, &c.

Now the A.C.G.B.I. have gone so far, may I suggest they should go a step further the coming season, and in all competitions under their control (including speed contests and hill-climbs), permit steam cars to show what they can do alongside petrol cars of the same price. I am in a position to state with authority there is a vastly increased interest in steam cars at the present time, and their advocates will never rest contented until steam cars are given the opportunity to show what they can do alongside petrol cars in open competitions throughout the country.

The prospective owner of a motor wants to select the best car for his particular purpose. Let him be in a position to judge from the results of the competitions whether the steam cars fulfil the claims

put forward by their advocates. For my part, if given this opportunity, I will enter a Turner-Miesse in every possible competition if they are thrown open to steam cars.

Let the A.C.G.B.I. give the steam cars their opportunity for one season, and I venture to say the number of modern steamers on the road, such as the Turner-Miesse, White, Serpollet, and Stanley will increase by leaps and bounds.

Yours truly,
TURNER'S MOTOR MANUFACTURING COMPANY, LIMITED,
J. BURNS DUMBELL,
Managing Director.

Nov. 22nd.

SIX-CYLINDER versus FOUR-CYLINDER ENGINES.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I notice that Mr. Jarrott is under the impression, and I assume of course that he gains this by experience with the motor cars in which he is interested, that four cylinders are more economical in the consumption of petrol than six.

In view of the fact that it is undesirable that anyone in this country should be under any misconception as to the merits of six cylinders, even on the question of petrol consumption, I wrote to the Automobile Club to ask them if they would undertake an official test for this purpose over three or four hundred miles of road, and I find that they will do so. I was therefore making arrangements for a 40-h.p. 6-cylinder Napier to be tested in this way, and the results publicly announced.

In view, however, of Mr. Jarrott suggesting that he has found arguments in favour of the 4-cylinder *versus* the 6, I thought it would be fairer to suggest that instead of my running a 40-h.p. 6-cylinder Napier merely for a consumption trial, results of which I know would be very excellent, that it would be better that Mr. Jarrott should simultaneously, under the club auspices, and, if necessary, even drive himself, a latest 40-h.p. De Dietrich, such as he recently exhibited at Olympia, as I think it would be only fair that his latest model should be allowed to perform. I would run a latest 40-h.p. 6-cylinder Napier. The two cars could keep together, so that they would be both tested under identical road conditions, and thus set at rest (once and for all) this point.

There is just one point on the question of economy that Mr. Jarrott has overlooked, and that is to compare the tyre bill of his 4-cylinder 40-h.p. with the tyre bill of a 6-cylinder 40-h.p. The latter is very much easier on tyres.

As it may be that Mr. Jarrott will not have a finished 40-h.p. of his latest model available for such a purpose, I will be quite agreeable if chassis only are run, each weighted up with 10 cwt. of ballast.

Trusting Mr. Jarrott will accept this interesting test, failing which I will run a 6-cylinder Napier under the club auspices in the manner I have suggested.

Yours truly,
S. F. EDGE.

Nov. 24th.

Re NUMBER OF CYLINDERS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—The letter in your last issue in reference to the number of cylinders is exceedingly interesting, as showing how even such a generally well-informed manufacturer as your correspondent is, can overlook many points of advantage that the 6-cylinder engine gives to a motor car, and to the user of it.

It is, of course, pleasing to read from so eminent an authority that he agrees that there are a number of points in favour of the 6-cylinder engine, and he then very properly goes on to set out what he considers are the disadvantages; but I hope to show you clearly that these points which he refers to are the result of a slight lack of knowledge on the subject, and have nothing to do with the 6-cylinder principle.

Error No. 1.—He suggests that a fly-wheel of twice the weight required on a 6-cylinder car of the same horse-power is not a disadvantage, as the extra two cylinders would weigh as much as the heavier fly-wheel on the 4-cylinder car. Let us, for the purpose of argument, agree to this. He forgets, however, how much heavier all the shafts and other parts which have to take the wear and shock would have to be to take the greatly increased shock of the explosion of the 4-cylinder engine, plus the fly-wheel, twice the necessary weight. This would increase the whole weight of the car very greatly if equal wearing capabilities were expected from it that one would get from a similar horse-power 6-cylinder.

Error No. 2.—*Re* loss of wall heat, I think he has confused loss of wall heat with loss of power. If he would kindly work out what 18 per cent. loss in wall heat means, compared to its influence on loss of horse-power, he will find it so small as to be not worth considering. Obviously, if one only made an engine from the point of

view of reducing the loss through wall heat, one would simply have a single-cylinder engine of the greatest possible dimensions, but your correspondent is quite as well aware as I am that this would not be a practical vehicle, as the other parts of the car would have to be so abnormally heavy to stand this fearful shock that the car would not be a practical vehicle, and it is for this very reason that the 6-cylinder engine, owing to its extraordinary smooth turning motion, enables one to reduce weight in gears, transmission, and fly-wheel, and yet at the same time produce a car with which a guarantee as to freedom from mechanical repairs can be given, that it is impossible to obtain with a fewer number of cylinders.

Error No. 3.—In regard to petrol consumption, perhaps your correspondent would state what he considers would be the correct petrol consumption of the 40-h.p. 4-cylinder foreign cars which he sells, and I should then be pleased to run a 6-cylinder 40-h.p. Napier against his car for petrol consumption, and show him that even in petrol consumption a 6-cylinder 40-h.p. will consume less petrol than a 4-cylinder 40-h.p. foreign manufacture such as he supplies.

Error No. 4.—In regard to his suggestion that a 6-cylinder engine necessitates an abnormal wheel-base, this requires no answer on my part, I need only refer him to the published details of the foreign car in which he is interested, and he will there see that the wheel-base of his 40-h.p. car is given as 10 ft., and in the same information published he will see that the wheel-base of the 40-h.p. 6-cylinder Napier is 9 ft. 8 ins., 4 ins. shorter than his own car. Personally, I do not consider the wheel-base of his car is abnormal, but if he thinks it is then I would suggest him having his design altered to that which he thinks is correct. The Napier design I leave to the approval of those who purchase them, and who can see them at Olympia.

Error No. 5.—In regard to the question of silence and flexibility, it is of course obvious that to take two engines of a given h.p., the one that has six cylinders must obviously be quieter and more flexible than one that has a less number of cylinders, simply because each of the six can have a smaller explosive charge in it, just in the same way that a nine-inch gun makes more noise than a rifle per explosion.

Thanking him for the opportunity he has given me to correct evident fallacies that exist among well-informed manufacturers, and trusting that his factory arrangements will soon permit him to appreciate the merits of six cylinders as the public do.

Nov. 24th.

Yours truly,
S. F. EDGE.



A 6-Cyl. Thornycroft Car.—Six-cylinder cars continue to attract the attention of more and more automobile manufacturers, the celebrated Thornycroft the latest to adopt a model of this class is to be of 30-h.p., with $4\frac{1}{2}$ -in. bore, but the engine resembling, in general, the present 24-h.p. model. The car is of about 11 ft. 6 ins., and a track of less to say, it will have a "live-axle."

The "Austin" Touring Cars.—Particulars are now available concerning Mr. Herbert Austin is about to be built at large works near Birmingham that he has acquired for the purpose. Of the live-axle type, with propeller-shaft drive, the 15-20-h.p. model will have 870 mm. by 120 mm. tyres on the rear wheels, 870 mm. by 90 mm. front tyres, and the gear-box will provide three forward speeds with a direct drive on the third, whereas the 25-30-h.p. chassis is to have tyres of 920 mm. by 120 mm. and 910 mm. by 100 mm., and there will be four forward speeds. Both engines have four vertical cylinders, with low-tension magneto or high-tension battery ignition (or both on the larger car), while a sliding cam-

shaft permits the compression to be reduced for starting, and a forced-feed system of lubrication is employed. Water-cooled foot-brakes, internal hub brakes, ball-bearings for the entire transmission, and lever control from above the steering wheel are further features of both cars. The 15-20-h.p. engine has cylinders of 4 in. bore by 5 in. stroke, and on the larger model the bore is $4\frac{1}{2}$ in. with a 5 in. stroke.

The Coupe des Pyrenees Theft.—Much sympathy will be felt with Messrs. Jarrott and Letts in regard to the singular theft of which they have been the victims. As English agents for the De Dietrich firm they procured from the Baron de Türckheim, chairman of the De Dietrich Company, the loan of the Coupe des Pyrenees—a trophy which was won by a De Dietrich car in August last. The trophy, which is very artistic, representing the nude figure of Venus seated in her car (rendered appropriate to the occasion by the addition of a steering wheel) was about 2 ft. 6 in. long and nearly 2 ft. high. As visitors to the exhibition will recollect the trophy formed an attractive feature of Messrs. Jarrott and Letts' stall. During the first days of the exhibition Mr. Letts had the trophy removed each evening into the offices at Olympia, but subsequently he thought it would be safer to engage a night watchman. On Saturday morning, according to the night watchman, the trophy was safe enough at six o'clock. The night watchman left the stand for a few minutes when the usual cleaners arrived at that hour, and when he returned the trophy had disappeared. Considering its weight and size the thieves must have been expert, audacious, adroit and muscular. There was only one exit by which they could have effected their escape, and they appear to have vanished, "leaving not a rack behind." Since the disappearance of the trophy Messrs. Jarrott and Letts have offered a reward of £50 "with a view to its recovery."

The Pyrenees Cup, which disappeared in such a sensational manner from the stall of Messrs. Charles Jarrott and Letts, at Olympia last week. This Cup was won by a De Dietrich Car during the past season in connection with the arduous competition which took place through the Pyrenees and district

An Omen.—One night last week, a birth took place on the top of a Vanguard motor omnibus, and we are informed that both mother and child are now doing well. It requires no very expansive imagination to interpret this as an omen of universal future prosperity for the motor 'bus.

CONSIDERABLE interest has been created amongst motorists in America by the news that the Oldsmobile Company are bringing out a car having a twin-cylinder, two-stroke engine.

THE Congress, called in Paris, of the Automobile Clubs of Europe, to arrange, if possible, dates for the various leading motor racing events and tourist car competitions for 1906, has been fixed to take place on December 16th at the stand of *L'Auto* in the Paris Salon.

PERSONS in the Metropolis who desire to supply water (at a cost) for the use of motor vehicles, will, in future, have to take out a licence of 10s. per annum for permission to be allowed to do so, and will have to use water meters as well. It should be borne in mind that the sale of water for any purpose by consumers, unless licensed by the board or company who supplies them, is illegal.

A GOOD move has been made by a local paper, the *Kentish and Ashford News*, who are issuing from time to time a list of roads (from information supplied by the district surveyors), which are "up," that is to say, being re-metalled. If the local papers would go still further, and add to their list of roads that are "up," roads on which the police are "out," and where they are situated, they would still further incur the gratitude of automobilists.

IT is said that visitors to Switzerland find almost the only available meat to consist of mutton, and the situation is accordingly far from pleasing to many *gourmets* who like variety of diet. Our comic contemporary, *Das Schnauferl*, suggests that in future the Swiss authorities should give a little more liberty to automobilists, who would then run over other animals as well as sheep, and the restaurants would be able to provide the needed variety.

THE popularity of the motor 'bus, and the effective manner in which it is dealing with the London traffic, are beginning to produce their effect outside London, and one is pleased to see that Alderman Regester, in the Middlesex County Council, said at the recent meeting of that body that he doubted the advisability of constructing any more tramways when motor 'buses were so well able to deal with the traffic. Unfortunately, the Council was of another opinion, and passed new tramway schemes for north-west Middlesex. There is something mysterious—if, indeed, it is still mysterious—about this almost indecent haste to get down electric trams while there is yet time.

FOLLOWING up their show of high-class models of Fiat cars at Olympia, Fiat Motors, Limited, during the early part of this week indulged in a further exhibition entirely on their own account, at 37-38, Long Acre, where, in addition to the chassis and carriages shown at Olympia, where the restriction of space prevented any-

thing but single models being exhibited, on the various floors on the Fiat premises a grand variety of these cars were displayed to the stream of visitors who took advantage of the invitation of the company to see their latest models. Fiat X., the famous motor boat cruiser and racer, and Lancia's racing car were special attractions on the ground floor, Mr. Victor Miller and Mr. D'Arcy Baker dispensing hospitality whilst imparting information to their numerous guests.



COMMERCIAL POINTS.

Legros and Knowles, Limited.—The employees of Messrs. Legros and Knowles, Limited, the well known makers of the "Iris" car, held their first annual dinner at the Clarendon Hotel, Hammersmith, last week. Although it was a large and representative gathering, unfortunately, owing to their attendance being required at the Exhibition, the directors were unable to be present. Mr. J. E. Booth was in the chair, and proposed success to the firm in a short but characteristic speech. Mr. E. Codling replied on behalf of the directors. The toast of the "The Iris Car and the Iris Boat" was naturally honoured with great enthusiasm. After the dinner the whole of the gathering adjourned appropriately, per motor 'bus, to the Shepherd's Bush Empire, where the very pleasant gathering was brought to an interesting close.

THE Continental Tyre Company have issued their new price list, No. 10, for Continental motor tyres for the season 1906, which cancels all previous lists. List No. 10 includes all particulars of their new non-skid tyres, in addition to their round and square tread motor tyres, tyre accessories, &c. Owing to the large increase in the business of the company, they have been compelled to enlarge their premises in Clerkenwell Road, and have acquired the adjoining building, viz., 102, Clerkenwell Road. They are also opening a new depot in Manchester at 255, Deansgate. In Glasgow, again, they are removing to more commodious offices at Baltic Chambers, Wellington Street, where Mr. R. A. Whyte will be in charge.

The popularity of the Continental tyres can be appreciated from the fact that about 430 wheels were fitted with them at the Olympia Show, a far greater number than at last year's exhibition. Altogether 21 different makes of tyres, we learn, were represented at the Show.

THE continued headway being made by British-made tyres for heavy traction work is very remarkable. The most recent case in this respect is that of the Sirdar Rubber Company, Limited, who have just secured from the Star Omnibus Company a contract to the amount of £10,000 for their Royal Sirdar omnibus tyres. These are to be of the same type as those which have been running on the company's double-decked omnibuses in London during the past six months, the new ones being destined not only for replacements when necessary on these 'buses, but also for the additional motor 'buses which the Company are putting on during the ensuing twelve months, and of which they expect to have twenty-five on the roads by the end of February next. This contract is only one of several similar contracts which run over the next two years which the Sirdar Company have secured, and altogether their enterprise in taking over the big works at Bradford-on-Avon is already more than justified by the work which they have in hand.

A RECEPTION was given on the 24th instant by the sale staff of Messrs. Humber, Ltd., to their sales manager, Mr. J. W. Adams, in the Louis XVI. Room at the Trocadero Restaurant. Mr. E. F. Johnson, manager of Messrs. Humber's London depot, was chairman on this occasion, and performed the duty of proposing what proved to the great delight of everybody the only toast of the evening, viz., the health of Mr. Adams. The success of the Humber firm commercially is largely due to Mr. Adams' personal efforts and activity, and as he is extremely popular with the whole staff the proceedings were of a jovial and hilarious nature, the party subsequently adjourning to a popular place of amusement.

THE Scottish Motor Engineering Company, Limited, advise us that they have now fitted up a garage and two large shops in connection with their works at Granton Harbour, Edinburgh, which will be used exclusively for repairs of motor cars of any type. Qualified engineers and repairers will always be in attendance. Automobilists should note the address, as the works are situated on the main road from England to the north of Scotland.

Torquay Motor Omnibus Company, Limited.—At the annual meeting of this Company on Tuesday, it was decided to pay another annual dividend of 7½ per cent. upon a capital of £5,000. The year's receipts amounted to £5,455, and the gross profit was £1,462. The petroleum used as fuel cost £561, and lubricants £110. Renewal of tyres cost £391.

NEW COMPANIES REGISTERED.

Barnett's Motors (Limited).—Capital, £5,000 in £1 shares (3,000 preferred ordinary and 1,500 deferred ordinary). Object, to acquire a business carried on by H. H. Barnett at 128, Bristol Street, Birmingham. First directors, F. T. Murray and H. H. Barnett.

Leech Tyre Company (Limited).—Capital, £1,000 in £1 shares.

London and South Coast Motor Service (Limited), 68, Victoria Street, S.W.—Capital £100,000 in £5 shares (of which 6,666 are to be allotted in part payment of purchase price, and 13,334 offered to the public). Object, to provide a service of fast motor coaches between London and Brighton, Hastings, &c., and to take over the motor coach service now run by J. W. Cann between Folkestone and Hythe, and to extend the same to Dover and Lydd. First directors, W. H. Davis, J. P., F. C. A., T. Prior, C. Roberts, J. W. Palmer, and J. W. Cann, M.I.M.M.

New Revolution (Limited).—Capital £2,000 in £1 shares. Object, to acquire the business of cycle, motor cycle, and accessory manufacturers, carried on by W. C. Lloyd at Vauxhall Street, Birmingham.

NEW ISSUES.

The Motor 'Bus Company, Limited.—This company, formed with a capital of £305,000 divided into 300,000 ordinary shares of

£1 each, and 100,000 deferred shares of 1s. each, announce an issue of 150,000 ordinary shares at par. The company, it is stated in the prospectus, will work in harmony with the London Motor 'Bus Company and the London and District Motor 'Bus Company, Ltd., the Company seeking to specially serve districts running from Stamford Hill, Finsbury Park, Highgate, Leyton, Greenwich, Ilford and Barking to the City, besides cross routes in these districts, the routes being so arranged that the three companies do not overlap each other, or come into direct competition. The directors are Messrs. Esmond Caillard, Clarence Freeland, and Joseph H. Smith.



BANKRUPTCY COURT.

Re R. F. Dickerson.—A sitting was held last week for the public examination of Ralph Frederick Dickerson, described as of 84-86, Chancery Lane, E.C., journalist. The accounts showed liabilities £844, of which £644 was expected to rank, and available assets £31.

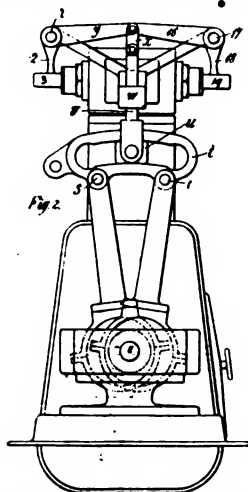
In answer to Mr. W. P. Bowyer, Assistant Receiver, the debtor stated that he was formerly in the mercantile marine, and afterwards in the motor trade. He has since been interested in three periodicals, known as *The Mobile Illustrated*, *The Motor Tourists' Guide*, and *The School Magazine*. On attaining his majority in October of last year he became entitled to £3,540, which he had since expended. He attributed his failure, among other causes, to the loss of £1,180 in connection with the periodicals mentioned, and to loss on the purchase and sale of motor cars. He had also been fined ten or twelve times, which had cost him, for furious driving, about £250 in fines and expenses.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

1219. 21st January, 1905. Improvements in Internal Combustion Engines. George E. Wright, 81, Gardengate Street, Barrow-in-Furness, and Herbert Parker, 87, Ashton Old Road, Manchester. The object of this invention is to provide convenient and effective means for reversing in internal combustion engines, and it consists in a valve-controlling mechanism comprising a second-motion shaft carrying two pairs of eccentrics, one pair of eccentrics being adapted to operate the inlet-valve or valves through the medium of an adjustable slotted link and a rocking shaft, and the other pair of eccentrics



being adapted to operate the exhaust valve or valves through the medium of similar mechanism. There are three figures. Fig. 2 is an end elevation of the twin-cylinder engine. The cycles of the two cylinders are coincident, and a common connecting-rod fitted to one crank-pin is employed. The pistons, *a*, have a forked connecting-rod connecting both pistons to the one crank pin; *e* is a second-motion shaft, driven by toothed gearing or otherwise from the crank shaft, and it carries two pairs of eccentrics, the first pair only being shown. The straps of the eccentrics are of similar construction, and are connected to eccentric rods pivoted at *r* to the slotted link, *f*. In the slot of this link works the block, *u*, pivoted to the rod, *v*, which is capable only of a vertical motion, being guided in the bracket, *w*. The

top of this rod, *v*, is pivoted to the bottom end of a small link, *x*, the upper end of which is pivoted to the rocking lever, *y*, which is keyed or rigidly attached to the rocking shaft, *z*. The shaft, *z*, carries levers, *2*, the lower ends of which act on the ends of the valve-rods, *3*. These rods, *3*, are formed integral with the exhaust valves, which are pressed open inwards by the levers, *2*, and closed by the action of the springs. The straps of the other eccentrics behind those shown are connected to eccentric rods pivoted to another slotted link. In the slot of this link works a block pivoted to a rod, also capable only of a vertical motion, being guided in the same bracket, *w*, which guides the rod, *v*. The top of this rod is pivoted to the bottom end of a small link, the upper end of which is pivoted to the rocking lever, *16*, which is keyed or rigidly attached to the shaft, *17*. The shaft, *17*, carries levers, *18* (only one being shown in the drawing), the lower ends of which act on valve rods, *19*. These rods are formed integral with the admission valves. These valves are pressed open inwards by the levers, *18*, and are closed by the action of springs. The blocks, *u*, can occupy different positions within the slotted links if these links are moved to the right or left. Any suitable mechanism can be used for actuating the slotted links, so as to alter the positions of the blocks within the links. When either block is at one end of the slot it is almost wholly under the influence of one eccentric and when it is at the other end of the slot it is almost wholly under the influence of the other eccentric. One eccentric is used (both in the case of the admission valve mechanism and in the case of the exhaust valve mechanism) when the engine is rotating in the usual direction, and the other when the engine is going in the reverse direction. By linking up, that is, by putting the blocks, *u*, in an intermediate position between the two end positions the power and fuel consumption of the engine can be reduced by limiting the extent of opening (both as regards distance and as regards time) of the valves.—November 8th, 1905.

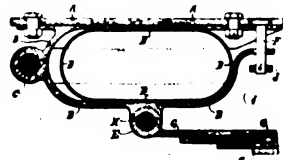
29655. 31st December, 1904. Improvements in or connected with Buffer Devices for Vehicle Springs. George Johnston, c/o Messrs. Johnson and Co., McPhail Street, Bridgeton, Glasgow, N.B. This invention has for its object to provide a simple and

effective device for supporting a pneumatic buffer between the springs and frames of a vehicle, the device at the same time forming an anchor for the end of the spring. There are two figures. Fig. 1 is a longitudinal section. To the frame, *A* (or other suitable part of the vehicle) is fixed a casing, *B*, formed in two parts of trough-like section arranged one beneath the other, hinged together laterally at one end, *C*, and open at the other, the open end of the lower part of the casing working on a pin, *F*, depending from the frame and having in its lower end a collar, *J*, to limit the possible descent of this part of the casing. The two parts are so shaped as to form what may be termed a jaw, within which is placed a buffer preferably as shown in the form of a pneumatic cushion, *D*, but which may be of any suitable elastic material. Upon the under side of the lower part of the casing a lug, *E*, is formed, and to this lug the end of the vehicle spring, *G* (which is of leaf form, and is carried upon the axle as usual, part of the spring only being shown), is directly connected by a pin, *H*, passing through openings in the forked end of the spring and in the lug, *E*. A simple and effective buffer device is thus provided to absorb those shocks which, for example, occur when a vehicle is travelling over cobble stones, and which are too rapid to affect the springs.—November 5th, 1905.

Patent Specifications Published. Applied for in 1905.

Published November 9th, 1905.

- 4,776. E. A. MEYERS. Valve mechanism.
 - 7,381. G. A. TURNER. Lamp supports.
 - 12,378. J. H. JOHNSTON. Carburetor.
 - 12,780. A. W. MACLEOD. Carburetor.
 - 13,038. FAHRZKUGELABRIK EISENHACH. Friction clutches.
 - 14,250. W. BACHTOLD. Safety starting gears.
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The Automotor Journal, December 9th, 1905.

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A RECORD AND REVIEW OF APPLIED AUTOMATIC LOCOMOTION.

Circulates amongst Makers and Users of Motor Cars, Cycles, etc., in the United Kingdom, the Colonies, and the Continent.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1905.		
Dec. 13 ...	Practical Lessons on Motor Cars (Ladies' A.C.).	
1906.		
Jan. 17 ...	Auto-Cycle Club Dinner.	
Jan. 19-27 ...	Birmingham Motor Show.	
Jan. 26-Feb. 3 ...	Crystal Palace Motor Show.	
Feb. 1 ...	*4,000 Miles Tyre Trials.	
Feb. ...	*Lamp Trials.	
Feb. 9-17 ...	Liverpool Motor Show.	
Feb. 9-17 ...	Newcastle Motor Show.	
Feb. 23-Mar. 3 ...	Manchester Motor Show.	
March 9-17 ...	Glasgow Motor Car Show.	
March 24-31 ...	Cordingley and Co.'s Motor Show.	
Aug. ...	*Van Trials.	

Foreign Events (Trials, Races, &c.).

1905.		
Dec. 8-24 ...	Paris Automobile Salon.	
Dec. 12 ...	A.C. de France Fête.	
Dec. 31 ...	Coupe de Salon, Paris (Motor Boats).	
1906.		
Jan. 13-20 ...	Brussels Exhibition.	
Jan. 13-20 ...	American A.C. Show, New York.	
Jan. 17-20 ...	Western Indian Trials.	
Jan. 22-27 ...	Ormond-Daytona Beach Races.	
Jan. 26-30 ...	Calcutta Motor Trials.	
Feb. 3-18 ...	Berlin Motor Show.	
Feb. 3-18 ...	Turin Automobile Show.	
April 1-15 ...	Monaco Motor Boat Exhibition and Races.	
April-May ...	Milan Exhibition.	
May 5 ...	"Targa" Florio (Sicily).	
May 13-14 ...	Tour de France (Motor Cycles and Voiturettes).	
June 10-16 ...	Herkomer Cup.	
June 28-29 ...	Kiel Motor Boat Races.	
Sept. 15-16 ...	Mont Ventoux Hill-Climb.	

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

All Together!

THERE can be practically no doubt that we are at last not very far off a General Election. It may be delayed for a short time, but it is almost as certain as anything can be, excepting rates and taxes, that early in the new year will see the country in the turmoil of electing candidates for another Parliament. When the election takes place, owners of motor cars will be in universal request. If a single car owner in the country does not receive pressing invitations to place his car at the disposal of one or other of the candidates for his constituency, or even for other constituencies when dates permit of it, his case will be decidedly exceptional. Automobile owners will then have their chance. Let us trust they will use it wisely and well, and, as we have repeatedly urged in the past, absolutely refrain under any circumstances from assisting any candidate by the loan of a car who does not pledge himself to promote the interests of the movement by undertaking to support sensible and progressive legislation. There is something ludicrous in automobilists (as has often occurred in the past) finding they have lent their cars for electioneering purposes to support a candidate, who, as soon as he has got into Parliament, has done all he can to cripple and impede the automobile movement. It is accordingly with much satisfaction that we produce below the letter which Sir Alfred Harmsworth has written to the Press on the subject:—

"In reply to your request for the loan of my motor cars during the forthcoming election, I regret that until I have a definite under-

taking that you will support reasonable amendments to the present unjust laws in regard to these vehicles, I do not feel disposed to send to distant parts of England valuable cars, which I quite recognise are essential to the success of the forthcoming contests. I do not take this course without reason. Formerly I was in the habit of lending my automobiles to members of our party without any question.

"As a rule, the rough and tumble of an election seriously injures a motor car, but I am sure that all enthusiastic Unionists are willing to take that risk. In the past, however, I have had a valuable car returned to me badly damaged, and I was not pleased to find that the Member of Parliament who was assisted in gaining his seat by means of the vehicle in question, at once supported the legislation that has done so much injury to an industry that should be the means of finding work for at least as many of our mechanics as are employed therein in France.

"I would repeat that unless, therefore, you are prepared to give me your assurance that you will support reasonable legislation, on lines which I will suggest, I regret that I must reluctantly decline to despatch my vehicles to your help."

Let the Automobile take Precedence.

SIR ALFRED HARMSWORTH'S letter puts the case in a nutshell. There are ardent politicians, no doubt, who may feel some qualms about making terms with a party candidate, but if they are ardent automobilists, we would urge them to let the ardour of their politics, at any rate for this occasion, take the second place as compared with the ardour of their automobilism. After Sir Alfred Harmsworth's clear enunciation of his attitude they need have few misgivings. He is an ardent politician if ever there was one. The papers which he controls are systematically and vigorously conducted in a particular political interest, but he recognises that a critical situation has arrived in the history of the motor car movement, and all the power that automobilists can bring to bear on its behalf should be employed. His power is considerable. He is the owner of a fleet of motor cars large enough to set up a moderate dealer in practice. He has had experience, as will be perceived from his letter, of lending them at election times in the past, and he has evidently come to his decision after mature reflection on the results of his past experiences. After his example, no car owner in the country should have any hesitation in putting automobilism first and other politics second.

A Power to be Reckoned With.

As a matter of fact, if automobilists hold together stoutly and conscientiously, there will be no need for anybody to sacrifice his political convictions. If each candidate is assured, no matter in which political interest he may be offering himself, that if he gives the necessary assurances in regard to automobile legislation he will have a phalanx of motor cars at his disposal, while that if he refuses them he will have to rely on his old friend the horse and its congeners—the pony, donkey and mule—to convey his supporters to the poll, he will give the required assurances without hesitation. Few, indeed, will be the candidates who will refuse them. All the bye-elections which have taken place during the past few years have shown over and over again that in all elections at all likely to be close ones, the assistance of an adequate number of motor cars decides the contest. It must be remembered that in most recent elections there have been motor cars on both sides, though there have as a rule been more on the side of the winner than on the side of the loser. We ask candidates to think what chance they will have if all the motor cars available are on one side and none on the

other. They will have no chance at all, and they will know it, and whether they are Conservatives or Liberals, will give the required pledges. Every automobilist therefore, however strong his political convictions, may without hesitation determine to adopt the line that Sir Alfred Harmsworth recommends. If they all hold together the vast bulk of Parliamentary candidates will surrender at discretion, and the effect on the balance of political parties may possibly be inappreciable. But the future of the motor car movement will be assured.

♦ ♦ ♦

{Don't Nail His Ear to the Pump.

WE have never been struck by the impartiality of the King's Bench judges in cases in which the motor car has been concerned, and we must certainly say that we are not impressed with the judicial fairness of the remarks made by Mr. Justice Grantham, at the recent Kent Assizes, in passing judgment on Charles Guillemard, who, as our readers will remember, some time ago took a pot-shot with a rook-rifle at some passing automobilists, alleging, when asked why he fired, that "they go so fast they run over children." The defendant, Guillemard, had been committed for trial at the Assizes, and when he came before the Judge, at the instance of his counsel, he pleaded guilty to a common assault—the common assault consisting in discharging a gun "in immediate proximity to the motor car." This plea was accepted, and the other one of attempting to wound, or whatever it was, was allowed to drop, although it was proved in evidence that the bullet from the rook-rifle, which the defendant said was out of order, passed quite close to the head of a lady who was seated in the car. Mr. Justice Grantham, in giving judgment on the accused, spun forth a series of observations, which, if they had been attributed to a judge in one of the admired works of the late Lewis Carroll, would have undoubtedly been regarded as a masterpiece of humour. "He had read the evidence which was very conflicting, but there was a preponderance in the accused's favour" (which leaves it quite uncertain whether what preponderated in the accused's favour was the evidence or the conflictingness of it). "At the same time the prisoner had done a dangerous thing, and it was right that the case should be brought forward, in order that others should be warned from doing harm in that way." (But the charge of doing the dangerous thing has been withdrawn—there is no danger in firing a gun near a motor car, if you do not point it at the occupants.) "There was a great feeling in the country," went on the Judge, "with regard to motor cars, particularly in country districts, and there was some foundation for it. It was a wicked thing for motor cars to go the pace that some of them did, owing to children playing about the country roads. The only marvel was that children were not killed every day in the week. But *people must not shoot at motorists*, and although the accused might have fired in the air, he might have done serious injury or even something worse. If motor car drivers went too fast, they must be punished by law, but people must not use a gun on them." And then, *pour encourager les autres*, he dealt with the accused under the First Offenders Act; and he was bound over and liberated. No, people must not shoot at motorists, though if they do so, and explain that they only discharged a gun in "immediate proximity" to a motor car, and come before Mr. Justice Grantham, they will to all intents and purposes be let off!

A Judicial Scandal?

Now we would plainly ask the question: Is this or is it not a judicial scandal? Here is a man charged with committing a serious offence. He is brought before the magistrates, who commit him for trial at the Assizes. And then the Judge at the Assizes finally sentences him, under the circumstances described above, and under the First Offenders' Act—to be let off. Does anyone suppose that had the accused fired his rook-rifle in such immediate proximity to people driving in a horse carriage he would have been let off like this? Judges are supposed to administer the law without prejudice and without favour. Are Mr. Justice Grantham's remarks likely to encourage dangerous assaults on automobilists or are they not? Here was a man accused and proved to have fired a gun at the occupants of a car. Instead of reading him a lecture on the heinousness of his offence, the judge launches forth into a diatribe against the wickedness of motorists. Suppose, in the days of the old agrarian agitation, an Irish countryman had been found discharging a gun "in immediate proximity to" a landlord, what would have been said if the judge before whom he was tried delivered a lecture on the wicked ways of landlords, and commented on the excessive rent they extracted from their unfortunate tenants? We again ask: Do Mr. Justice Grantham's remarks amount to a judicial scandal or do they not?



Royal Commission on Motor Cars.—On Wednesday, last week, at the 25th, and at the following sittings of the Commission, further witnesses have been examined as follows:—Earl Russell, Mr. Cozens-Hardy, on behalf of the Automobile Club; Mr. Ross, chief engineer of the Great Northern Railway; Mr. Inglis, general manager of the Great Western, on behalf of the Railway Companies' Association; Dr. Bruce Porter and Mr. Lockwood, F.R.C.S., representing the Association of Medical Men using motor cars; Miss S. S. Bennet, on behalf of the Highways Protection League; Mr. J. Ogden Hardicker, on behalf of the Urban District Councils' Association; Mr. E. B. Newton, borough surveyor of Paddington; and Mr. Norman Scorgie, borough surveyor of Hackney, representing the Metropolitan Borough Councils; Mr. J. Lulham Pound, on behalf of the London Omnibus Owners' Federation; Mr. G. L. Gomme, clerk to the London County Council; Mr. D. A. Matheson, chief engineer of the Caledonian Railway; Mr. G. F. L. Foulger, on behalf of the Gas Light and Coke Company; Mr. W. B. Mason, land agent, Windsor; Mr. J. A. Steel, on behalf of the Highways Protection League; and Mr. W. W. Marks, Clerk of the Peace for the County of Bedfordshire.

The Commission, which has sat on 27 days and heard 110 witnesses since October 16th, has now adjourned until after Christmas. The Commissioners do not propose to take any further evidence before proceeding to consider their report.

Appeals.—We have received from the Motor Union some interesting particulars of appeals to Quarter Sessions in the case of convictions of automobilists. Since January, 1904, when the new Act came into force, there have altogether been 77 motor car appeals to Quarter Sessions. Of these 30 were successful, 37 were unsuccessful. In 7 cases the convictions were upheld,

but the penalties inflicted reduced—which 7 cases may accordingly be regarded as modified successes—and of the remaining 3 cases 1 failed on a technical objection, 1 was abandoned, and 1 was adjourned. Considering the constitution of Quarter Sessional Courts, this high proportion of successful appeals must be regarded as very encouraging. The Motor Union desires to see a modification introduced into the law which shall give the right of appeal in all cases of conviction. It is to be hoped that as far as Scotland is concerned, at any rate, this proposal may ultimately find its place on the Statute Book, as at present it is impossible to make an appeal in Scotland unless the penalty imposed in the first instance has amounted to £10 or more.

A Contrast in Police Regulations and Methods.—

The proprietors and builders of motor omnibuses cannot fail thankfully to recognise the extreme courtesy displayed by the Commissioner of Police of the Metropolis in the manner in which he has promulgated the regulations for obtaining licences for these vehicles, which we reproduce elsewhere. He has sent round to all the leading manufacturers a copy of the draft regulations asking for their remarks in reference to them, pointing out that they will not be required to be observed in the case of vehicles already built, or such as are so far advanced as to render their alteration impracticable, and asking what number of vehicles the particular manufacturers happen to have in this condition, so that they may be able to make exceptions to them. The Commissioner states that he desires to make the regulations, with the assistance of those to whom the draft copy was sent, of such a kind as to ensure the introduction of vehicles of a type suitable alike to the public and their proprietors, and that they will not require alteration for many years. It is most satisfactory to find so important an official adopting this courteous and conciliatory tone, and it is unquestionably of the happiest augury for the future of the motor 'bus and the movement generally.

A SOMEWHAT different spirit is, according to the statements which have appeared in the Press, being displayed by the City Police, who, if accounts are true, propose to limit the number of motor 'buses allowed to ply through the City, though they have not decided exactly what number they will allow. This decision has been taken in reference to the determination of the London Road Car Company, who have commenced a new motor 'bus service between Putney and Burdett Road, at Mile End, the total length of which is 10 miles. The double journey, 20 miles, is covered by the motor omnibuses in 2 hours and 10 minutes, horsed omnibuses taking at least 4 hours to accomplish it. The City Police allege that the probability of breakdowns interfering with the general traffic is the reason they propose to limit the number of motor omnibuses. One cannot help regarding this attitude as unnecessarily cautious. The number of breakdowns in motor omnibuses are relatively insignificant, and against them should be placed, on the credit side of the account, the much smaller extent to which the motor 'bus when running normally interferes with ordinary traffic, and the enormous acceleration of traffic which will ensue when *all* the omnibuses are mechanically driven.

HIGH-TENSION MAGNETO IGNITION.—PART XVIII.

THE GIANOLI SYSTEM.

(Concluded from page 1474.)

it is connected to the feeder brush, D^3 , which leads it to a brass ring provided with a projecting quadrant, or arm, D^4 . As the distributor revolves, this arm, D^4 , comes opposite to each of the distributor "brushes," D^5 , and the current is thus switched on to each ignition plug in turn. The special feature about this distributor is that the "brushes," D^5 , do not touch the distributor quadrant, D^4 , and the electricity has, consequently, to jump across in the form of a spark. The gap is, of course, very small, and not being surrounded by compressed gas, as are the ignition plugs in the cylinder, the extra spark is of comparatively small account. The advantages claimed for this system are that it does away with the friction of rubbing contacts and the consequent formation of fine metallic dust, and which is liable to cause trouble. Against this must be set the necessity for more accurate fitting, but this fact has been fully realised by the manufacturers, who have provided a carefully made and substantial fastening for the purpose. A safety-spark-gap, D^6 , is provided on the distributor for the protection of the secondary windings in the event of a breakage occurring in one of the wires to the plugs.

Timing the Ignition.

The system of hand "timing" fitted on this magneto is particularly simple, but we have not seen it adopted hitherto, although the system of rocking the entire magneto about the armature has already been introduced. With magnets of the horse-shoe type, however, this latter method would have many objections, and in any case it would be more costly to arrange than the system of moving separate pole-pieces, as is done in the Gianoli magneto. These adjustable pole-pieces, and the manner in which they are fitted, have already been described. Their movement is accomplished by the "timing" lever, K , which is attached directly to the bearing plate, M^1 .

Rocking these pole-pieces is equivalent to tilting the magnets themselves, and the instant at which the armature current is sufficiently powerful to operate, the contact-breaker is advanced or retarded accordingly. The high-tension distributor is not necessarily coupled to the magneto timing-lever, K , because the distributor quadrant is made sufficiently wide to ensure that it shall always be opposite to the correct "brush" for all positions throughout the timing range.

FIG. 11.—The Gianoli High-Tension Magneto.—View of the Coil-box which is specially wired to enable either the Magneto or the Battery to be used with the same ignition plugs. The switch is on the side of the box. The induction coil itself is, of course, only used with the battery ignition.

The High-Tension Distributor and its Connections.

In the Gianoli system the high-tension distributor is entirely separate from the magneto, but in order to connect it with the high-tension coil on the armature it is obviously necessary to have some form of "brush gear" for collecting the electricity from the revolving armature on to the stationary wire leading to the distributor. This, however, has been very simply arranged for by means of a spring contact, D^2 , which presses against the end of the rod, D^1 , as the armature revolves. The actual end of the secondary winding is, it will be remembered, coiled up on a rubber pad and it is against this that the inner end of the rod, D^1 , makes contact.

From the contact, D^2 —which is mounted on a neat ebonite screw fitting—the high-tension current passes along a wire to the separate distributor, which may be mounted on any suitable "half-speed" shaft. Here

FIG. 12.—The Gianoli High-Tension Magneto.—Detailed views of the Switch which forms such an important feature of the battery box illustrated in Fig. 11. This is, in reality, two switches, one half being low-tension, and the other half high-tension.

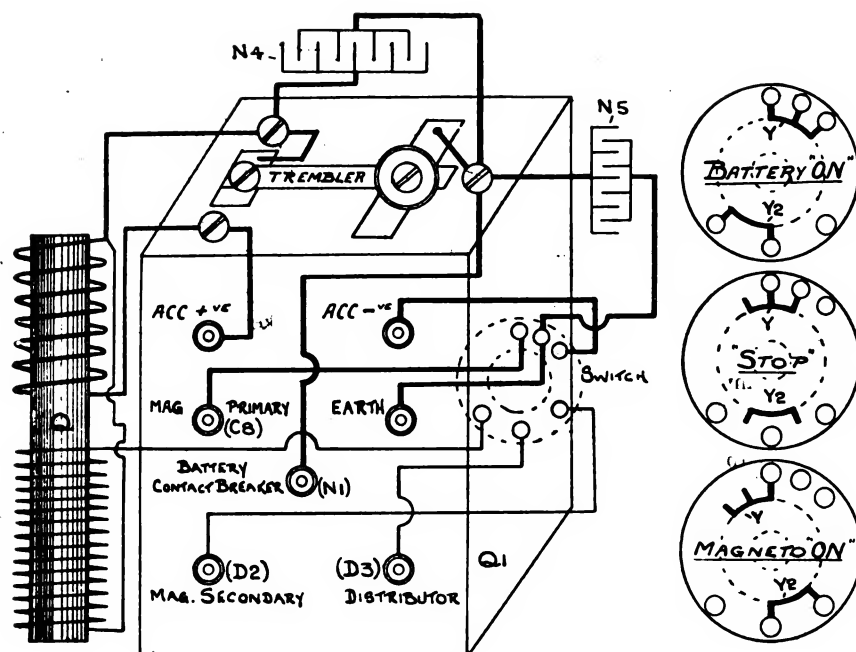


FIG. 13.—The Gianoli High-Tension Magneto.—Diagram of the connections inside the Coil-box showing how the two systems are isolated from one another. On the right are diagrams showing the three "positions" of the switch, which thus form a key to the other connections.

Some mention of the effect which the contact-breaker has in automatically timing the ignition has already been made. This is a matter, however, in which there are several counteracting influences at work, and at present there is insufficient data available to make it possible for us to give any very definite information on the subject. In Fig. 9, however, we give a diagram, based on assumed data, which illustrates the general principle of this action. Two curves, *a*, of current intensity are drawn on the same base line ($0^\circ-180^\circ$), which represents one half revolution of the armature. The higher curve, which represents an engine speed of 1,500 revs. per min., is, at all points, above the other curve, which represents an engine speed of 400 revs. per min.; it follows, therefore, that it will reach the line, *b*, sooner. The line, *b*, represents—as it does in Fig. 7—the instant at which the contact-breaker comes into action, and the distance between the points, *c*, and *c'*, therefore represents the amount (in degrees) by which the ignition is automatically advanced, when the engine speed changes from 400 to 1,500 revs. per min. It will be remembered, however, that at 1,500 revs. per min. the line, *b*, takes up some higher position, *b'*, on account of magnetic lag, and thus the automatic advance, *c*, *c'*, is counteracted by the amount, *c'*, *c''*. The lag in the armature-current itself would also tend to still further curtail this effect, but at present no data is available to enable us to give relative values to these different influences.

We understand, however, that there is a considerable amount of effective automatic timing in practice.

The Internal Electrical Connections.

The winding of the armature is shown in Fig. 10, and this diagram enables the system to be compared with the other magneto systems which we have previously described.

The only point to be specially noticed is that the high-tension coil is connected to the live end of

the primary winding instead of being earthed directly to the core. The primary coil is, therefore, included in the secondary circuit at the time the spark takes place, although it is independent of the secondary when the contact-breaker is closed.

The Battery Circuit and the External Connections.

It is not always a simple matter to install battery ignition as an auxiliary to a high-tension magneto—if both systems have to use the same ignition-plugs—unless the magneto system, as a whole, has been designed in the first instance for such use.

The manufacturers of the Gianoli magneto have therefore constructed an induction coil for use with the accumulators, and have enclosed it in a special box, which contains all the necessary terminals and interconnections to enable the battery to be easily installed and instantly brought into use, by means of the switch, when required. The

terminals in the box (Fig. 11) are all labelled in such a way that any motorist could easily make the necessary

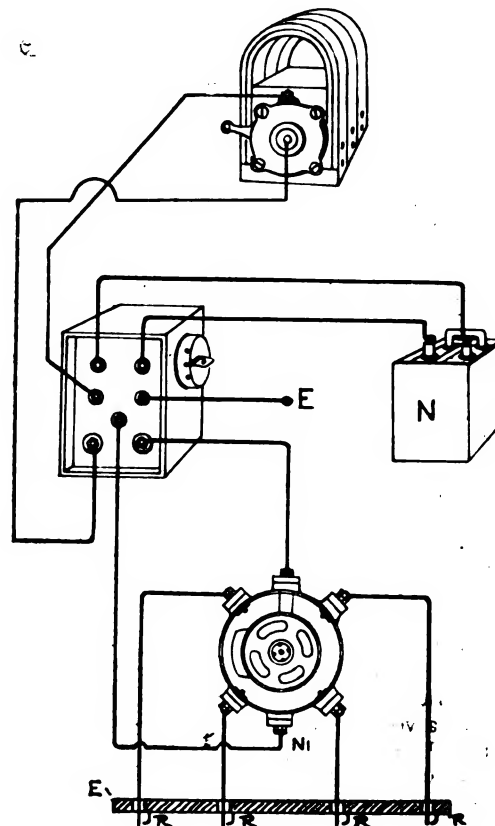


FIG. 14.—The Gianoli High-Tension Magneto.—Diagram of external wiring showing the connections necessary when installing the system in a car.

connections, especially by the aid of the diagram in Fig. 14, which shows the complete scheme of wiring necessary for installing both systems. The internal connections of the coil-box are shown diagrammatically in Fig. 13, and this diagram is particularly interesting, because it illustrates the manner in which the two systems are isolated from one another.

The principal obstacle in the way of making a simple combination of high-tension magneto and battery ignition is that the secondary coil of one system "short-circuits" the ignition plugs whilst the other system is in use. A high-tension switch is, therefore, essential in systems which have two independent secondary windings connected to the same ignition plugs.

A low-tension switch is, of course, required in any case, in order to change over from one to the other of the two primary circuits. In the Gianoli system both switches are contained in the same case, and there is thus no difficulty in operating them simultaneously. The upper half of the switch (Fig. 12) is confined to the low-tension connections, and the lower half to the high-tension wires.

On the right-hand side of Fig. 13 the three "positions" of the switch are shown separately, and these, taken in conjunction with the rest of the diagram, render the connections self explanatory. The following summary of the functions which the switch performs is also given, however, because it is especially useful as showing the essential points to be provided for in an installation of this kind.

Battery On:—*Low Tension*: accumulator circuit closed, and magneto primary winding "earthed." *High Tension*: secondary winding of battery coil connected to distributor, and connection between distributor and magneto secondary winding broken.

Stop:—*Low Tension*: magneto primary winding "earthed," and battery circuit broken. *High Tension*: both circuits to distributor broken.

Magneto On:—*Low Tension*: battery circuit broken, and magneto primary circuit to "earth" broken. *High Tension*: magneto secondary connected to distributor, and the battery-coil secondary-circuit to distributor broken.

Table of Reference Letters for the Gianoli High-Tension Magneto System.

A Armature core.	D Secondary winding.	F ¹ "Live end of F.	N ² Contact-maker for battery circuit.
A ¹ Side plates of A.	D ² Spindle in contact with live end of D.	F ² Condenser case.	N ² Cam operating N ² .
A ² Pole-pieces on A ¹ , for operating C ² .	D ² Spring contact against D ¹ .	F ³ Conductor strip to F ¹ .	N ² Condenser for battery trembler.
B Armature spindle (driven end).	D ³ Feeder-brush.	G Magnets.	N ² Condenser across N ¹ , N ² .
B ¹ Armature spindle (free end).	D ³ Distributor-segment.	G ¹ Base-plate for G.	O Induction-coil core.
B ² Armature end plate.	D ³ Distributor-brushes.	G ² Magnet-poles (fixed).	Q ¹ Induction-coil case.
C Armature primary winding.	D ³ Distributor-spindle.	G ² Magnet-poles (adjustable).	Y Switch bar (low-tension side).
C ¹ Live end of C.	D ⁹ Safety spark gap.	G ² Brass straps for G.	Y ¹ Switch terminals.
C ² Contact-breaker.	D ¹⁰ Cap for distributor box.	K Timing lever.	Y ² Switch bar (high-tension side).
C ² Casting carrying C ⁷ .	D ¹¹ Plug-board.	M Bearing-plate (driving end).	
C ⁷ Adjustment-screw.	D ¹¹ Plug-board.	M ¹ Bearing-plate (free end).	
C ⁸ Switch terminal.	D ¹⁴ Terminals to plugs.	M ² Armature bearings.	
B ¹⁴ Trembler blade for C ² .	F "Earth."	N Accumulators.	
	F Condenser.	N ¹ Adjustment-screw for N ² .	



Fire Brigade Cars.—The speed with which the chiefs of fire brigades can reach the scene of any conflagration by means of the motor cars which are now gradually being introduced for this purpose, enables them, in most cases, to reach the fire in time to grasp the best method of employing the engines for the subduing of the flames by the time that the engines themselves arrive on the scene. With the ordinary fire engine or a motor fire engine no difficulty occurs in rapidly clearing a way owing to the prominence of the vehicle, crowned by the firemen in helmets, and the well known cry of the firemen. With the official motor car, however, a very different state of affairs occurs, as, owing to the lowness of the seats of the car, the fact that it is an official fire brigade car is not instantly realised, in spite of the shouting of the occupants, and consequently delay occurs in many cases before traffic is held up or drawn aside. An instance of this character during the week brought home to us the desirability of some measure being adopted by the brigade whereby the approach of the fire brigade official car would be instantly recognised. We would suggest that a twelve or fourteen-inch gong, fixed in front, should be employed, similar to those in use in America and in certain Continental cities. It would be a very distinctive and penetrating warning, and should prove most effective in its results. We would further urge that, in the event of the suggestion being adopted, steps should be taken to render it illegal for the real boulder cyclist to adopt the same pattern (and size) gong, in similar fashion to the annexation by a certain type of the cycling fraternity of both the shrill and the deep voiced motor horn.

Thames Regulations for Motor Boats.—The Society of Manufacturers and Traders have decided to address a communication to the Board of Trade in reference to the proposed new bye-laws for petrol launches on the Thames, which has been approved by the Thames Conservators. There are many features of the bye-laws likely to prove troublesome to motor boat owners and the Motor Manufacturers and Traders are accordingly petitioning the Board of Trade to receive a deputation, so that before the regulations are finally passed the points can be discussed verbally.

Hurley Burly.—The effect of the movement in favour of constructing special roads for the use of automobilists has already produced a deadly result. It has once more brought up and into the Press the dreaded Vicar of Hurley. He is certain "that unless ere long motor cars are entirely abolished from public metalled roads on which horse-drawn carriages and pedestrians travel, and are relegated to tracks of their own, there will be a serious rising of the people in this country. Life is already nearly unbearable, and the nuisance gets monthly worse and worse. Most of the motorists are absolutely selfish. The nuisance is bad enough in towns, but it is far worse in the country." That was what we were afraid of. As soon as we noted that the project for separate motor roads was being advocated we at once recognised that it was certain to be seized upon with avidity by all the antimotor-monomaniacs in the country.

THE NEW ARROL-JOHNSTON PETROL CARS.—PART IV.

be used with safety, and the live-axle is attached to the frame by side radius-rods as well as by a central torque-rod.

The Change-Speed-Gear.

Figs. 17 and 18 are illustrations of the gear-box for the 12-15-h.p. car, the former showing it from the right-hand side—with the upper half taken off and the propeller-shaft lying in front—and the latter giving vertical and horizontal sections through it. Quite a short shaft



Fig. 17.—View of the Arrol-Johnston Gear-box, as fitted to their 12-15-h.p. Touring Cars. On the right is the upper half, which receives the Operating Sleeve, and beneath is the Propeller-shaft.

The Transmission Gear.

CONCERNING the main clutch, no very full details are necessary, since it is of the already well-known "Hele-Shaw" type, arranged inside the hub of the fly-wheel. The discs, of which there are a considerable number, are corrugated, and are normally pressed up together by three easily adjusted springs; the discs run in oil, and rely upon small spring blades to separate them when the pressure of the main springs is released by depressing the clutch-pedal. Owing to the small size of the clutch, it is possible to so shape the arms of the fly-wheel that they act as effective fan-blades for drawing air, past the engine, through the radiator.

It is the change-speed-gear, the universal-joints on the propeller-shaft, the spring-drive device, and the construction of the live-axle that therefore require our chief attention, and it will be found that each of these parts have some very decided features of interest. For convenience, each will now be considered in turn, with the assistance of the photographs and line-drawings from which we have prepared the necessary illustrations. But little need be said in advance about the positions which they occupy relatively to one another on the chassis, because we have already given drawings of the complete chassis. Between the clutch and the gear-box, a flexible coupling is introduced in order to relieve the shafts of all lateral strains that might otherwise result from the independent fixing of the engine and the gear-box direct to the side-members of the pressed-steel frame. Gear-boxes of somewhat different design are employed upon the two models, but in both cases there are only three points of support provided—two arms on one side and a single arm on the other side—and both gear-boxes have roller-bearings for their shafts. Similarly it may again be pointed out that the 24-30-h.p. chassis has an additional spring, placed transversely, at the back, whereas only the usual semi-elliptics are employed on the 12-15-h.p. car. On both, however, the suspension is such as to permit solid rubber tyres to

Fig. 18.—Vertical and horizontal sections, showing the construction of the 12-15-h.p. Arrol-Johnston Change-speed-gear.

Fig. 19.—The Change-speed-gear of the 24-30-h.p. Arrol-Johnston Car.
View of the Box from above, with the upper half removed.

jecting outwardly. The forks lie
at right angles to one another,
and are connected together by the

cage-fitting, H^3 , which is made in two parts and has socket-bearings for all four pins. Around the entire joint is an aluminium-casing, H^4 (shown intact in Fig. 20, but partly cut away in Fig. 18), which is fixed to the shaft, H , and is rendered oil-tight by a leather stocking (not shown) fitted between it and the propeller-shaft, H^2 .

The gear-wheels all run in oil inside the gear-box, but special provision is made for supplying the bearings. For this purpose, the main casings have passages bored out for the reception of cotton wicks, and these wicks, which draw up the oil by capillary attraction, feed it to each roller-bearing.

For the 24-30-h.p. car, the change-speed gear (illustrated in Figs. 19 and 20) is in the main similar, and consequently the foregoing description is to a great extent applicable, especially as all parts which correspond exactly with those of the 12-15-h.p. gear-box have been given the same reference letters in our illustrations. The chief difference lies in the method adopted for operating the various "speeds," and in the consequent adoption of two sliding intermediate spur-wheels (K^5 and K^6) for the "reversing" gear. Instead of there being three

sliding bars with one engaging arm, as in the previous case, there are two tubes (K^2 and K^3), each of which has its own engaging arm (K and K^1), while both the arms, K and K^1 , have their own concentric sleeves, which pass through to the double-slotted quadrant, and are alternately "caught up" by the hand-lever. The tube, K^2 , controls the wheel, K^6 —i.e., the third and fourth speeds—and the other tube, K^3 , not only operates the wheels, H^4 and K^5 , for giving the first and second speeds, but also controls the intermediate pinions, K^3 and K^4 .

This last-mentioned function is performed with the aid of a spring, K^7 , for the spring tends to slide the intermediate pinions into their inoperative position and the same fork that controls the wheels, H^4 and H^5 , can act in opposition to the spring, through the agency of the lever, K^4 . In this way, the tube, K^3 —when pushed rearward as far as it will go—brings the wheel, H^4 , into mesh with the wheel, K^5 , and also causes the wheel, K^6 , to slide into gear with the wheel, G^4 . A safety catch prevents the hand-lever from being moved into its reverse position by mistake.

(To be continued.)



ON Thursday evening last Mr. Filson Young read an entertaining paper before the Automobile Club entitled "Morals from the Olympia Exhibition." Among many amusing and distinctly original views which Mr. Young put forward, the principal was that the Automobile Exhibition should be conducted philanthropically by the Automobile Club, and organised on lines, not for enabling manufacturers and dealers to transact business, but to provide useful instruction for the young idea in the principles of motor car manufacture—an arrangement which would doubtless be highly convenient and useful for the compilers of books on automobilism. The discussion which followed was distinctly lively, the manufacturers who took part in it being not generally in favour of this method of organising an exhibition, which would, needless to say, be a form of public instruction for which they would have to pay the costs.

THE Automobile Exhibition which we announced a short time ago was to be organised by the Brighton, Hove and District Automobile Association at the Royal Pavilion, Dome-Exchange, is now announced to take place from January 15th to 20th, about one month earlier than was originally anticipated. This Association has already doubled its membership during the past two months, and as a result of the forthcoming Exhibition, it is hoped to further enrol a large number of the thousand or more motor car owners who reside in the district.

RECENTLY we announced the arrival in England of Mr. Alexander Winton, chairman of the Winton Motor Carriage Company, of America, and we gave a few interesting points in connection with Mr. Winton's remarkable career and success in the American motor industry, as imparted by himself at a pleasant little function at the Company's London premises, given to welcome Mr. Winton upon his arrival in this city. It was understood that a second object of Mr. Winton's visit to Europe was that in addition to visiting the Olympia Show he might attend the Paris Salon. A third object is now apparent in the fact that the forthcoming marriage of Mr. Winton is announced to take

place on December 12th, to Miss La Belle McGlashan, of Paisley, Scotland.

It does not in the least matter what excesses you commit—provided you are a horse. They will be either taken no notice of at all in the general Press, or if circumstances compel allusion to them, they will be minimised as much as possible, and thrust away into obscurity near the poet's corner. This is what happened in regard to a shocking business which occurred recently at Leigh. According to a local paper, a horse attached to a cart took fright, goodness knows what at (no one ever does know exactly what frightens a horse), and bowled over a milk float. The horse attached to the float dashed off in turn, and finally caused a third horse to bolt, and the main street of the town accordingly witnessed the interesting phenomenon of no less than three of these trusty quadrupeds all running away at the same time, and creating general havoc together.

THE above information of course was stuffed away, near the quiet corner we refer to, in a local paper, and no notice has been taken of it in the general Press. In the case of Lord Rosebery's accident, of course, some publicity had to be given to it. It is an almost worse, though less absurd, case than the other, for Lord Rosebery is a distinguished and experienced whip. He has driven all his life, and yet he cannot avoid with certainty a dangerous accident when attempting to control these unreliable animals. Everyone will be delighted to hear that Lord Rosebery escaped practically uninjured, a piece of good fortune which is scarcely short of miraculous. Lord Rosebery was driving a two-horse phaeton on his Dalmeny estate on Saturday afternoon, and in turning a corner too sharply, no doubt owing to spasmodic action on the part of the horses, both Lord Rosebery and the page-boy who was with him were pitched out. The horses, of course, then bolted with the over-turned phaeton and ultimately (which "gives furiously to think," as the French say) Lord Rosebery was taken home without trouble or accident in his motor car, which was dispatched to the scene of the accident.

THE 1906 WINTON CARS.

(Continued from page 1498.)

Fig. 6.—The 25-h.p. Winton Car. View of the Chassis from above showing the long central radius and Torque-rod which lies parallel to the Propeller-shaft.

The Frame and Transmission.

PRESSED steel side-members—stayed together with channel cross members—form the main frame, which is supported by semi-elliptic springs, of a peculiar pattern, both in front and at the rear. Each spring is so constructed that it virtually forms two springs of different stiffnesses, and these are mounted in such a way that the upper part comes into play only when the shock or load is more than usually severe. This comparative independence of the upper spring is obtained by making it with long curled ends, and securing it in place by shackles hung at such an angle that the initial upward movement of the axle merely rocks these shackles, and does not

appreciably deflect the spring itself. Owing to the fact, too, that these springs are, in effect, considerably longer than the main springs, due to their curled ends, they are able to act gently and do not therefore cause any very sudden increase in the stiffness of the suspension as a whole—such as might result from the employment of entirely independent buffers. In spite of the fact that the rear springs lie outside, the main frame is, nevertheless, raised well above the ground, for both in front, and behind, the dumb irons are curved very much downwards. At the rear, these dumb irons are especially noticeable, for they form quite a feature of the frame. Between them pass two stay rods which stiffen the

Fig. 8.—The 25-h.p. Winton Car. View showing the ball-and-socket Thrust Block, Q¹, for the combined Radius-rod and Torque-rod, Q. The Thrust Block is, it will be noticed, set in line with the universal joint of the propeller-shaft, and is stayed to the side of the frame by the Rod, Q².

Fig. 9.—The 25-h.p. Winton Car. View of the back axle, showing the Stay-rod, R, the Brake-rod, S¹, and the combined Radius- and Torque-rod, Q. The upper half of the central portion of the axle casing is easily removable for access to the differential, which may be removed bodily after withdrawing the halves of the live-axle.

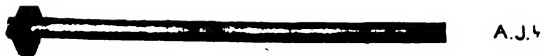


Fig. 7.—The 25-h.p. Winton Car.—View showing the suspension of the frame at the rear, and also the method of carrying the wheels on the projecting ends of the axle-casing. On the right the wheel is shown in place with the live-axle removed. Below is one half of the live-axle itself, complete with the jaw coupling, by which it drives the wheel, and just above this is the dust cap which screws on to the hub. Timken roller-bearings are used in the hubs, and these being conical also act as thrust collars.

frame in that region, and at the same time one of them serves as a support to the cylindrical petrol tank. It is interesting to note, too, in connection with the construction of the frame, that the side-members are perfectly straight, and not bent towards one another near the dash as is now the case on most cars. At the same time, however, a very free steering lock is available, for the frame is not of any very great width.

It is not often that any firm makes any self-evident radical departure in the materials used in the construction of the most important parts of their chassis, so the new front axle, made of manganese bronze, which the Winton Company have introduced on their latest model,

could hardly have failed to attract the interest of every visitor who saw this unique departure at the Olympia Exhibition. It has not been adopted, however, with any idea of revolutionising the axle trade, but merely as the outcome of the Winton Company's deep-rooted policy of making everything they possibly can in their own factory. Experiment has shown them that they can cast an axle in manganese bronze which they consider satisfactory, and this, therefore, they prefer to do, rather than build one up, or rely on solid forgings obtained elsewhere. The axle is cast with socket ends which carry the steering-heads on ball-thrust-bearings. A screw-and-nut device is employed for the steering-gear itself, and the road-wheels are mounted on Timken conical roller-bearings.

Similar bearings are used in the hubs of the rear wheels, which run on extensions of the axle-casing in order to relieve the live-axle itself of everything but the torsional driving strain. In order to render the differential accessible, the axle-casing is made in four parts, the two central portions being connected with a horizontal joint so that the top part may be removed for inspection without disturbing anything else. Beneath the axle-casing is an adjustable stay-rod, R (shown displaced in Fig. 11 for convenience), which relieves the sagging strain on the bolts used to fasten the parts of the casing together. Timken bearings support the differential shell, and also take the side-thrust, but a long plain bearing and a fibre thrust-collar are employed behind the driving bevel-pinion on the end of the propeller-shaft. No side radius-rods are used to tie the axle to the frame, but there is, instead, one central rod, Q, which is arranged alongside the propeller-shaft, and terminates at its upper end in a ball-and-socket thrust-block attached to one of the transverse-members of the frame. This thrust-block and the universal-joint at the top end of the propeller-shaft are in line with one another, and thus allow the axle to rise and fall without telescoping the propeller-shaft into its joints. As a matter of fact, however, ample provision for longitudinal motion is made in the universal-joints employed on the chassis.

(To be continued.)



AT OLYMPIA.—The 18-h.p. Gladiator Chassis.—Plan showing the 1906 Model, in which a "Mercedes" Gear, Pressed Steel Frame, and Honeycomb Radiator are important new features. In general design the chassis is similar to that of last year, and a description of the leading characteristics of this chassis together with other matter relating to the new Gladiator models, appeared in our issue of November 18th.

THE "S 41" TYPE PETROL OMNIBUS.

AMONG the motor 'buses supplied by the Motor Car Emporium, that known as the "S 41" type is principally notable for the manner in which the engine may be used, when required, as a brake. In a petrol engine, which is not specially fitted up for the purpose, no really effective braking effect is obtainable, because the retarding effect of

—is given in Fig. 4. The frame is of channel steel, and is carried by semi-elliptic springs, both in front and behind. Those at the rear lie outside, and both ends are carried in guide brackets, which are riveted to the frame. The back axle is tied to the frame by adjustable radius-rods, and the rear wheels, which are mounted on ball

Fig. 1.—Side view of the "S 41" type chassis for a double-decked 'bus.

compression is neutralised by the driving effect of the subsequent expansion, and the net result is little more than that due to friction alone. If, however, the exhaust-valve cam-shaft can be set, so that the compressed air in the cylinder is released into the exhaust-pipe as soon as the piston reaches its "dead-centre," then no power is returned to the engine on the downward stroke of the piston, and the net braking effect is that due to compression, as well as that due to friction. The engines on the "S 41" type 'buses have been fitted up in this manner, and the driver is thus enabled to control the speed of the vehicle almost entirely by means of the small hand-lever which works over a quadrant above the steering-wheel.

In general design the chassis of these 'buses follow ordinary construction. They are of the chain-driven type, are fitted with a gear-box of the Mercedes pattern, which gives four forward speeds and a reverse, and have a 4-cylinder engine capable of developing about 32-h.p. A view, showing the chassis from the side, is given in Fig. 1, and views of the engine from either side are reproduced in Figs. 2 and 3, while a larger view of the throttle-levers on the carburettor — which form an important part of the "air-brake" mechanism

bearings, are shod with Sirdar twin tyres. A peculiar feature of the large chain-wheels is that every alternate tooth is cut away, the idea being that it is useless to have a greater number of teeth in operation at a time on the chain-wheels than on the sprockets. The chains are composed of an odd number of links in order to neutralise the uneven wear which might otherwise take place on them from this arrangement. The engine is connected to the gear-box, in which ball bearings are employed, through an ordinary cone-clutch and a long propeller-shaft, which has a flexible coupling at the rear end. A band-brake, operated by foot, is fitted to the differential countershaft, and internal expanding brakes, operated by hand, are fitted to the hubs of the rear wheels.

Both engine and transmission-mechanism are well protected by a metal apron, which extends as far back as the gear-box, and there is a substantial bent rail, which projects in front of the frame to act as a kind of buffer.

The 4-cylinder engine has its cylinders cast in pairs, and its crank-chamber in one piece—with flanged ends.

Ball bearings are used on the crank-shaft, as also throughout the transmission. The inspection plugs over the inlet-valves are fitted with ignition-plugs, which are provided

Fig. 2.—View of the 32-h.p. engine from the inlet-valve side, showing the positions of the carburettor, A, the magneto, F, and the circulating pump, E.

Fig. 3.—View of the 32-h.p. engine from the exhaust-valve side, showing the positions of the air-chamber, E¹, on the water pipe, the automatic-valve, K, for the pressure feed, and the filler cap, H, on the lubricating oil tank.

in duplicate, one set being permanently connected to the high-tension magneto, F, while the other set is used in conjunction with the accumulators and induction-coil. The gear-wheels, driving the cam-shafts, are enclosed, and are situated in front of the engine. The radiator has a similar appearance to those of the honeycomb type, but it is not constructed of tubes. Thin corrugated strips of brass are used instead, and these are soldered together, in pairs, to form flat tubes. The tubes, thus formed, are assembled so that the cooling water can flow downwards through them and the air can pass freely between them. Behind the radiator is a belt-driven fan, and mounted on the fan spindle is the circulating-pump, E. The bracket carrying the fan spindle is mounted on springs, so that any stretching of the belt is automatically taken up. The circulating-pump delivers the cooling water to the centre of a branched pipe which feeds both water jackets, and, just above the junction between these pipes, there is a small air-chamber, E¹, for the purpose of steadying the pointer of the manometer, on the dash.

The petrol is carried in a tank at the back of the frame, and the lubricating oil, in a tank which lies under the bonnet, but which can be filled from the outside by removing the screw cap, H (Fig. 3). Pressure is maintained in both tanks by the exhaust gases from the engine, and the automatic-valve, K, controls the pressure to both tanks. The petrol passes through the ordinary type of float-feed chamber, A, on its way to the jet in the mixing-chamber, A¹, and the supply of mixture to the induction-pipe, A², is regulated by the throttle-valve, A³. The throttle-valve, A³, is under the driver's control, by means of the hand-lever above the steering-wheel. This hand-lever is connected to the vertical rod, B, which it moves up and down.

The rod, B, acts upon the throttle-valve, A³, through the bell-crank-lever-arms, B¹ and B². Simultaneously with the closing of the throttle, a lever, C—which is connected with the lever, B¹—operates a rod, C¹, which alters the lift of the inlet-valves by sliding tapered cams on the cam-shaft. The lever, B¹, it will be noticed, is so connected with the rod, B, that it may be moved downwards independently. This freedom is necessary because the engine is fitted with a governor, which acts on the throttle through the rod, C¹, and the lever arm, C. The governor is, however, only capable of *closing* the throttle, and a spring, B³, is, therefore, fitted in order to open it again, when the governor has ceased to act on it.

If the hand-lever above the steering-wheel be moved still further round the quadrant, after the throttle is closed, it causes an arm, B⁴, mounted on the end of the rod, B, to come into contact with the spindle, A⁴, which it then pushes

Fig. 4.—View showing some of the mechanism used in connection with the "air-brake" on the 32-h.p. engine of the "S 41" type chassis. The positions of the throttle-valve, A³; the petrol cut-off valve, A¹; and the rod, C¹, operating the variable lift of the inlet-valves, are prominent in this photograph.

down, and so closes the petrol jet. At the same time the throttle-valve, which continues to be carried downwards by the rod, B, uncovers the throttle-valve ports again, and pure air can then be drawn into the cylinder during the suction-stroke. A still further movement of the hand-lever brings into operation a rod, D, which rocks over the exhaust-valve cam-shaft, so that the exhaust-valves open at the end of the compression-stroke. In this position, the engine acts as a brake, for air is drawn into the cylinders during the suction-stroke, then compressed, and finally released just as the piston reaches the "dead-centre" at the end of the compression-

stroke. As the exhaust-valve remains open during the subsequent downward stroke, the piston, therefore, draws in air, which is compressed during the return-stroke, and released by the opening of the inlet-valves. Every upward stroke of the piston is, therefore, a compression-stroke, and the exhaust-valves and inlet-valves act, in turn, as relief-valves to the compressed charge.

The "air-brake" is, of course, only useful as a means of control so long as the 'bus can be kept in motion, because it is the momentum of the vehicle which restarts the engine when the "mixture" is once more admitted to the cylinders. If the clutch were disengaged with the "air-brake" on, then the engine would stop, and if the vehicle were at the same time brought to rest, then the

engine would have to be re-started by hand, because the absence of "mixture" in the cylinders, would prevent their being restarted on the switch.

Table of Reference Letters for the Motor Car Emporium 'Bus.

A Flat-feed-chamber.	G ¹ Rod operated by C to vary lift of inlet-valves.
A ¹ Mixing-chamber.	D Rod for throwing over exhaust-valve cam-sh-ft.
A ² Branched induction-pipe.	F Circulating pump.
A ³ Throttle-valve-spindle.	E ¹ Air-chamber.
A ⁴ Petrol cut-off-valve-spindle.	F ² High-tension magneto.
B Throttle-operating rod.	F ³ Timing-rod.
B ¹ Lever operated by B.	H Filler cap for oil-tank.
B ² Lever connected to B ¹ .	K Pressure-valve.
B ³ Spring on B.	
B ⁴ Arm on B operating A ⁴ .	
C Lever connected with B ¹ .	

THE THORNYCROFT INDUSTRIAL VEHICLES—SOME NEW MODELS.

Two entirely new designs have recently been introduced by Messrs. J. I. Thornycroft and Co., both of which were exhibited at the Olympia Exhibition. The smaller chassis has a 20-h.p. engine, and is intended for vans or luries carrying loads of about a ton, while the other has a 24-h.p. engine, and is built specially for double-deck omnibuses. Totally different as they are from one another, they are both extremely interesting examples of up-to-date design, while many of the radically novel departures from previous practice have a special significance since they are obviously the result of the prolonged experience of this well-known firm with industrial vehicles of all kinds. It is the transmission and suspension systems that chiefly attract attention.

The one-ton chassis has a stationary axle, but the central portion passes across from side to side on a much lower level than usual, while above it, and fixed to it at each end, is a completely enclosed differential countershaft. The countershaft is sufficiently above the centre of the road-wheels to permit the spur-pinions at each end to lie inside the internally-toothed gear-rings which are fixed to the hubs, and the wheels are driven by this gear mechanism. In the same way that the live-axle on an ordinary touring car is driven by a propeller-shaft, so is the countershaft connected up to the gear-box on this vehicle, and it has its bevel-gearing enclosed in a neat central case.

Most careful consideration has evidently been given to the question of radius-rods and torque-rods for taking the driving strains and the twisting strains in a satisfactory manner without interfering with the suspension. From the stationary axle, one long armoured-wood bar passes up centrally to the gear-box, and, encircling the tubes that contain the differential countershaft, there are two radius-rods which are anchored at their forward ends to the frame.

No "spring-drive" is fitted, the chassis differing in this respect from all previous Thornycroft models, but

doubtless this particular transmission system with its tie-rods is relied upon to provide its own shock-absorbing parts.

Side chains are employed on the new 'bus chassis for driving the road-wheels on the stationary rear-axle, and, in the main, the design is similar to that of most chain-driven cars. The differential countershaft, however, is completely enclosed, and its tubular casing is mounted freely in plain sockets at each end. Between the countershaft—i.e. the bevel-driven differential-gear—and the change-speed-gear is a flexibly-jointed longitudinal shaft, and between the external casing and the frame of the chassis is a torque-rod; the torque-rod alone anchors this casing, and takes all twisting strains imposed upon it by the reaction of the "drive." In turn, the back-axle is itself tied to the chassis proper by a pair of radius-rods that encircle it at their rear-ends, and encircle the countershaft casing at their other ends.

Between the axle and the frame, is an inverted transverse spring, the ends of which carry the rear ends of the semi-elliptic side-springs. In the way of brakes, one pair act direct upon the sprocket-wheels at the ends of the differential countershaft, another pair—of the expanding type—are fitted to the hubs of the road-wheels.

These two new models do not replace the single-chain chassis made by the firm, but only constitute additional types; they are only provided with three forward "speeds," as against four in the earlier vehicle.

A 5-ton petrol chassis is, we learn, also being built, in which the power is transmitted to the live-axle in much the same way that it always has been on the Thornycroft steam luries. In this form of transmission, a pair of double helical gear-wheels serve for the final drive to the differential, the pinion being connected with the frame-carried portion of the mechanism by a universally-jointed transverse-shaft.

THE Scottish Automobile Club has been timing various electric trams in Scotland, the measurements being made by Mr. D. Eason Hamilton, and checked by the official timekeeper, Mr. A. G. Rennie. The results show that the maximum speeds vary from 17.33 miles per hour between Hamilton and Larkhall, to as much as 21.4 miles per hour in Glasgow.

ONE more automobile publication has been added to the list of those appearing on the other side of the Channel. The first number of *L'Automotion*—an illustrated review of automobilism—appeared on the 1st of the month. In a prefatory notice the new journal declares that absolute truth and sincerity will be its guiding principles.

AT OLYMPIA.—View of one of the new Minerva Chassis, which are now of the live-axle type. In almost every respect the 1906 models differ from those which have preceded them, their leading characteristics now being a pressed-steel frame, ball bearings in the gear-box, two ignition systems, and thermo-syphon cooling.

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AT OLYMPIA.—View of the new Scott-Stirling Omnibus Chassis, which has a 22-h.p. four-cylinder vertical engine placed beneath the driver's feet, and an internal expanding main-clutch. Three forward speeds and a "reverse" are provided by the usual sliding-spur-wheel type of gear-box, and the road-wheels are driven by a live-axle. Owing to the elevated position of the radiator—which does duty for a dash—thermo-syphon cooling is possible, and a circulating pump, therefore, is not fitted.

THE CONSTRUCTION OF MOTOR OMNIBUSES—REQUIREMENTS FOR OBTAINING A CERTIFICATE OF FITNESS.

THE following draft regulations have been issued by the Commissioner of Police of the Metropolis for the guidance of proprietors and owners of public motor omnibuses. Suggestions are asked for by the Commissioner, in the event of any of the clauses being deemed objectionable, and the regulations are, therefore, subject to possible modification. They will not apply to vehicles already actually made, or so far advanced as to be incapable of alteration, all such receiving special consideration in each individual case. We give the proposed regulations in full, so far as they apply to motor omnibuses, but have omitted the conditions from No. 12 to 25, which apply to all Metropolitan stage carriages alike, and which deal with the number of passengers in and out, police number plates, name and address of owners, lighting, advertisements, ventilation, seating arrangements, steps, &c.

Carriages must be submitted to the Metropolitan Police for inspection in a thoroughly good condition, and no carriage will be certified fit for public use unless it is newly painted and varnished. The following conditions must also be strictly complied with :—

1. Stage carriages propelled by mechanical means, and subject to the Light Locomotives Act (59 and 60 Vict., cap 36) and Motor Car Act (3 Edward VII., cap. 36), must comply with the requirements of those Acts, and of the orders of the Local Government Board made in pursuance thereof.

2. Each new type of motor car intended for licensing must be presented at New Scotland Yard for inspection. The proprietor must at the same time produce the certificate of registration, and also one from the maker stating the machinery to be safe and in every way fit for use in a public carriage.

If, on inspection, the car is approved, such approval may extend to all cars of that description, and cars of that type need not be again presented at New Scotland Yard, but may be taken to the usual passing station, provided a certificate from the maker is submitted with each car for licensing, stating that it is in every respect similar to the type already approved.

Should an alteration be made, the same course may be required as for a first inspection.

Should it be deemed necessary, an expert will be employed to advise on the subject. The fee for the expert examination to be deposited by the proprietor with the Commissioner, which fee will be returned if the car is passed without alteration being required.

3. The following measurements for an omnibus with top-deck seats must be adhered to, and the number of passengers to be provided for on such vehicles must in no case exceed 16 inside and 18 outside :—

Chassis.—Height from ground after the body is affixed, minimum 28 ins., maximum 32 in.

Chassis.—Length, maximum 19 ft.

„ Breadth, inside measurement, minimum 38 ins., maximum 48 ins.

„ Clearance of the under parts, including axle as far back as the differential-gear box (where fitted), must be at least 10 ins. when the 'bus is fully loaded.

„ Wheel-base (centre), minimum 12 ft., maximum 13 ft. 6 ins.

„ Wheel track (centre), minimum 5 ft. 6 ins.

Body.—Height inside, minimum 5 ft. 10 ins., maximum 6 ft.

„ from ground to spring of roof, maximum 8 ft. 10 ins.

„ from ground to centre of roof, not to exceed 3 ins. camber.

„ of side guard rails 3 ft., and 18 ins. above the seats.

„ of front and back guard rails 3 ft. 3 ins.

„ Width of body inside between seat backs, minimum 56 ins.

„ from off hind roof seat to back rail, minimum 26 in.

„ Length of platform 36 ins.

„ Steps: one only to be used, which should be about 15 ins. from the ground.

Total length over all not to exceed 22 ft.

NOTE.—Smaller omnibuses to be in proportion to the foregoing measurements.

4. Each carriage must be fitted with at least two independent brakes of sufficient strength that either of them is capable of stopping and holding the carriage under all conditions.

NOTE.—The maintenance of the brakes in perfect order is of the utmost importance, and this will at all times be insisted upon.

5. Each car must be capable of being readily steered, and able to turn a corner without unduly interfering with other traffic.

6. The steering arms, &c., to be of sufficient strength, and as far as possible protected from damage by collision. Where possible they should be in duplicate, to allow of the car being controlled should one part become defective.

7. All wires carrying electric current to be sufficiently insulated and placed so as to be free from danger.

8. Petrol tanks should, if possible, be cylindrical and not rectangular, strong enough to resist pressure, and should, as far as possible, be fixed so that any overflow of petrol does not fall upon woodwork.

9. Driving chains and sprockets to be protected by a suitable guard.

10. Head lights of great brilliancy (such as powerful acetylene lamps) will not be permitted.

11. That at least 16 inches, measuring in a straight line, are allowed for each passenger on every seat, which must be fit and proper and convenient for sitting on.

NOTE.—Though the above conditions may have been complied with, yet, if there be anything in the construction, form, or general appearance which in the opinion of the Commissioner renders the carriage unfit for public use, it will not be licensed.



A Weekly Trap List.—The Automobile Association, which has done so much to relieve the labours of the police on the main roads out of London, particularly the highways to Brighton and Portsmouth, is arranging to publish a weekly trap list on the analogy of similar publications provided for the enlightenment of stockbrokers and other “operators.” Members of the Association by an additional subscription of 10s. per annum will regularly receive this useful little compilation which will give “quotations” of all the places near which it is specially desirable not to approach the legal limit of speed. This will, no doubt, further contribute to taking a load off the minds of the police. Those of them engaged in manning any particular trap will only have to obtain a copy of the “weekly trap list,” and on recognising that their particular organisation figures therein, will be able to continue in their umbrageous

thickets, and beneath the “widespreading beeches” on the Ripley Road, that study of the classics which we last week suggested as suitable to the occasion. Possibly, even during the winter when the umbrageous thickets are less agreeable places for reclining under, they may, convinced of the superfluity of their proceedings, return to their ordinary duties, or—as their long continued neglect of these for higher game seems only exceptionally to have been productive of serious consequences—to the enjoyment of domesticity by their own firesides. Even in Great Britain ridicule ultimately kills (though not so quickly as in France), and the amount of ridicule which the arrangements of the Automobile Association are concentrating on the “motor car trap,” is having a decidedly deadly effect. May it soon descend into the grave of former and forgotten methods of exasperating respectable citizens “unknelled, unconfined, and unsung.”

RACES, RECORDS, AND TRIALS.

European Circuit, 1906.—We have in previous issues of the Journal given the bases upon which the A.C. de France Sporting Commission had determined to make the classification in this very important touring event next year, together with other items which were to govern this trial. The full rules are now to hand, and we summarise them below.

The distance is to be 5,000 kilometres, and the trial is to be one of endurance and regularity of running. The organisation is to be primarily under the control of the A.C. de France, in collaboration with the recognised foreign clubs and the leading French clubs. The 5,000 kilometres will be covered in about fourteen stages, varying from 300 to 400 kilometres. In addition, six exhibitions of one day each will be organised at various important cities in France and other European countries through which the competitors will pass. Competing vehicles will be exhibited in these in a special section without charge.

There will be four categories, each determined by the average speed of which the cars are capable, entries in

start, the driver and mechanic of such car will be permitted to enter the garage, the car as from that moment being timed as starting. The car must then be started, and at once driven out of the garage without any replenishments of oil, petrol, or anything else whatsoever, these having to be dealt with outside in the running time of the competitor.

Entries will be received at ordinary fees up to April 15th next. After that date and up to June 1st fees will be doubled. Vehicles driven by any form of mechanical motor are eligible to compete.

The jury will be an international one, and will be composed of representatives of each country in proportion to the number of vehicles engaged. This jury will deal with the particulars supplied by the competitors, will decide the official classing, and will deal with all disqualifications, &c.

The weighing, marking of parts, &c., will take place eight days before the day to start. The chassis will be weighed firstly by itself, including the fuel and oil tanks, and subsequently with the carriage body complete.

	Entrance Fee.	Average Speed per hour.	Maximum Total Piston Area.	Seats.	Style.	Carriage, Body, and Fittings. Min. Weight.	Weight to be Carried.
	francs	kil.	mm ³			kilogs.	kilogs.
Cat. I.	1000	30	86590 = 1 cyl. of 105 mm. bore	2	Petit Duc* ...	75	3'3 per cm ² of piston area
" II.	1500	35	226190 = 2 cyls. of 120 mm. bore	4	Double phaeton† ...	200	2'95 " " "
" III.	2000	40	346360 = 4 cyls. of 105 mm. bore	4	Closed double phaeton	375	2'35 " " "
" IV.	2500	43	530920 = 4 cyls. of 130 mm. bore	4	Limousine ...	450	2'15 " " "

* With hood.

† Without hood.

each category being limited by the surface of the piston or pistons. In each category, in addition to the power of the motors, special regulations will govern the weight of the carriage body and accessories, passengers, the luggage, tools, renewals, &c., in proportion to the power of the engines. The dimensions for each type of carriage body are specified for each class. The classes are given in our table above.

Steam cars will have a special category to themselves. The results will be arrived at according to the regularity of running between the numerous controls.

Cars arriving at the end of a control at an earlier hour than allowed under their average declared speed will be stopped, and they will be re-started at the hour at which, according to their average declared speed, they should have arrived. Cars taking a longer time than that allowed for by their average declared speed will be penalised by one point per minute in excess of such maximum time. A forty-five minutes' wait for *déjeuner* will be enforced, and any car not stopping the full forty-five minutes will be penalised by one point per minute for such time as the car is not stopped.

The cars will be started each day in the reverse order to that in which they arrived the previous day.

Closed "parks" will be strictly enforced throughout. Cars, on their arrival in the official garage, must only have their motors stopped immediately the car is in place. Each morning at the moment when each car is timed to

Change of pneumatic tyres will be permitted, but the number of spares to be carried by the competitor must be declared beforehand, together with the name of the maker, and except the tyres so authorised, no others will be permitted to be used. When any tyre is replaced the old one must be given up to the authorities at the next

AT OLYMPIA.—The 1906 two-seated De Dion Car fitted with 8-h.p. single-cylinder engine, tubular frame, individual clutch gear and stationary rear axle with the wheels driven direct by cardan shafts.

The regulations are to be translated into the language of the several countries through which the route will pass.

Voiturette Competition.—The judges have given their decision in this Paris trial, of which we gave particulars in our last issue. It will be remembered that, during the first stage of the last day's reliability run, an enormous number of nails had been maliciously scattered on the route over which the competing cars passed, with the result that they one and all were seriously handicapped and penalised by breakdowns through punctures. Having fully considered the question of annulling this stage under the circumstances, the jury have decided not to annul this section, and under these conditions the official results have been decided as follows, the first place going to the Vulpes car, whilst the De Dion Bouton firm obtained the two next places, as well as the prize for regularity, as announced by us last week :—

	Penalisation Points.
1 Vulpes (Barriaux)	241
2 De Dion Bouton (Lionel De Dion)	327
3 De Dion Bouton (Cormier)	439
4 Lacoste et Battmann (Gachet)	502
5 De Dion Bouton (Bardin)	561
6 Gregoire (Tavenaux)	1,334
7 Lacoste et Battmann (Rochay)	1,726
8 Gregoire (Renoncé)	3,437

AT OLYMPIA.—The 1906 Daimler Car.—Front view showing the neat finned tube radiator, with its aluminium casing, which forms such a distinctive feature of these well-known cars. The straight front-axle is another unusual characteristic.

control, so that the old tyres and tubes may be sent to the Commission at Paris to be identified and checked with the original number of renewals granted. The number of tyres used will be taken into consideration in classing.

Honorary diplomas will be awarded for the endurance tests in each category, in the proportion of one to each five competitors, such awards being given to those five having the least penalisation points. All competitors who arrive within the maximum specified time will receive a diploma. The start will be from the A.C. de

France to hold a Big Race next Year.—Following a resolution of the Chambre Syndicale de l'Automobile that it is desirable that a long speed race should take place in 1906 in France, there is every probability that the A.C. de France will consent to organise such an event during the coming year.

The German Automobile Club have decided, on the other hand, after full consideration that they will not

organise a speed contest on the road for 1906, owing to the fact that the manufacturers are too busy to give the attention to building racing cars.

THE regular Aix-les-Bains long-distance tourist car competition is to be abandoned for 1906.

24-Hour World's Record.—A new record is reported from America as having been made at the Indianapolis mile track, for 1,000 miles and for the 24 hours. The cars timed were two 40-h.p. National 1906 touring cars, stripped. Under the auspices of the Indianapolis Automobile Racing Association, and with the sanction of the American Automobile Association, a start was made at 2.45 p.m. on November 16th, the cars being driven by J. Clemens and C. Merz. Clemens' car, in the 151st mile, came to grief through defective steering apparatus, but although the car was damaged, no other injury occurred. The two drivers from that time took turn and turn about in driving. The first new record time was at the 650th mile, which was timed for 14h. 8m. 51 $\frac{3}{4}$ s. The 1,000 miles were run in 21h. 58m. 0 $\frac{1}{2}$ s., beating Vaughan's previous record for the distance by 1h. 35m. 19 $\frac{1}{2}$ s. The distance covered in 24 hours was 1,094 $\frac{3}{8}$ miles, this exceeding Vaughan's distance by 78 $\frac{3}{8}$ miles. The finish was at 2.45 p.m. on November 17th. The chief intermediate new record times were:—

Miles.	h.	m.	s.	Miles.	h.	m.	s.
650 ...	14	8	51 $\frac{3}{4}$	850 ...	18	23	44 $\frac{3}{4}$
700 ...	15	10	29 $\frac{3}{4}$	900 ...	19	44	48 $\frac{1}{2}$
750 ...	16	20	25 $\frac{1}{2}$	950 ...	20	54	50 $\frac{3}{4}$
800 ...	17	17	26 $\frac{1}{2}$	1,000 ...	21	58	0 $\frac{1}{2}$

The average speed was about 45 $\frac{1}{2}$ miles an hour, and the best mile was timed for 1 min. 2 $\frac{3}{4}$ secs.

MONT VENTOUX Hill Climb is announced to be held on September 15th and 16th of next year.

THE Milan A.C. announce an important tourist car competition for next year, with a grand prize to be termed the Gold Cup. The distance for the trial, to be run in the spring of 1906, will be 4,000 kiloms. Valuable money prizes will be given in addition to Cups.

ACCORDING to the *Blackpool Herald*, the prospect of further racing on Blackpool Promenade is extremely poor. Our contemporary states that it may be safely concluded that Blackpool has seen the last of its motor speed trials, and that "in the future the nurturing of the motor interests in Blackpool is to be left to the motorists themselves, whose friendly trips into the country cannot possibly aggravate or inconvenience any section of the Blackpool public."

Goggle Competition.—The judges announce their decision in respect to the goggles sent in for competition to the A.C. de France. M. Georges Huillier secures the Duc de Valencay's prize, and Mr. G. Cormier's prize is divided between M. Feriol and M. Lataste.

Théry Retires.—"I am resting on my laurels," said the elderly gentleman, when he clapped on the brakes too suddenly just as he arrived at his front door, and was accordingly precipitated from his automobile into the middle of his laurel bush, and the celebrated Théry has made use of the same expression, though he has never had a serious accident. He has now finally decided he will take part in no more automobile races.

AT OLYMPIA.—Views of the 9-h.p. and 12-h.p. Globe Cars, the special features on which are the Hitchon Gear, the worm-driven Back-axle, and the inverted elliptic transverse Spring which forms the only suspension for the frame at the rear. The smaller model has a single-cylinder Engine, but there are four cylinders on the engine of the larger car. The Gear-box is of the sliding spur-wheel type, but a system of free-wheel clutches is introduced in order to make changing speed easier. A description of this gear appeared in our issue of February 27th, 1904.

He has steered the cars of his firm to victory, and came in a good first in the four greatest automobile races the world has seen, he has not recently been beaten, and now he is determined that he will remain unconquered. Cincinnatus went back to his plough after he had saved Rome, so Théry is going back to his bench in the workshop from which he emerged to world-wide celebrity. This is a wise decision, and has something fine about it, too. One of the charms of Théry's character has always been that all his successes have never made him adopt

the slightest difference in his attitude to his fellow-workmen with whom, once upon a time, he used to work at the bench. He has netted nearly £10,000 by his great victories, and as he is very frugal and still resides in the same rooms he occupied before he achieved universal fame, and, as he is a highly-skilled workman, he has not much fear for the future. The great thing to know is when to leave off, and few people learn the lesson. We wonder if Théry will be wise enough to keep to his sensible resolution



MOTOR BOATING.

THE competition for the "Coupe du Salon" for motor boats had, at the last minute, to be postponed from December 3rd until December 31st, owing to the dangerous state of the stream in the Seine above Paris. The necessary sanction of the river authorities has been given for the races to take place.

THE Marquis de Dion is having what he terms a "floating villa" built to order. It appears to all intents and purposes to be a large motor-driven house-boat; in fact, the only difference would seem to be that the Marquis de Dion refuses to call it by that name. It is 100 ft. long, very broad, and of shallow draft, and it can be driven by its motors about six miles an hour. The Marquis de Dion intends to drive his "motor-villa-boat" or "villa-motor-boat" up the Seine when he has business for any length of time in Paris, and live on the Seine near the capital, and when he wants to go anywhere else, for example to Monte Carlo, he will have the motor-boat-villa forwarded by water; in this way the Marquis will always be able to be, as an advertisement says, "At home, from home," and as he is taking a couple of motor cars on board, he will be able to explore the neighbourhood of any spot he stops at.

MESSRS. GAUTHIER AND Co. have good reason to lament the bad luck which has too often attended motor racing boats, for a specially unfortunate slice of it has been portioned out to the 50-h.p. Rochet-Schneider, 30-feet cruiser, which was to have been exhibited by them at the Olympia Show, subsequently going on to the Paris Exhibition. She has had her first and last experience of the water. Her builders, Messrs. Gallinari and Co., of Leghorn, shipped her for London, for the sake of safety, on board a small steamer. Bad weather was encountered in "the Bay," and the captain of the steamboat believing or stating his vessel to be in danger, promptly jettisoned his motor-driven rival, which dived head first into the stormy water, and promptly disappeared from view, making a journey to the bottom in no doubt record time.

MESSRS. S. F. EDGE, LIMITED, have sent us a most attractive booklet describing the various trips and exploits of Napier Major. The letterpress of the publication consists of a brightly written account of the various journeys which Napier Major has undertaken, and to which copious reference has been made in our columns. The numerous incidents on various tours are illustrated by photographic reproductions of the places and people visited.

The 16-20-h.p. Humber Car.—View (on the left) showing the lower half of the Gear-box, with the gears and operating-rods in place. Four forward speeds, with a direct top gear, are provided by means of two sliding members which are operated on the Mercedes principle. The "reverse" is also independently operated by a separate sliding gear-wheel below the lay-shaft. Plain bearings which are ring-lubricated are fitted to all shafts, but an important feature in the construction is the provision of an additional ball-bearing, B, to maintain true alignment at all times between the driven and driving shafts. On the right is a view of the Engine of the 16-20-h.p. Humber Car from the exhaust-valve side, showing the position of the Eisemann High-tension Magneto. The Commutator, A, which is mounted on an inclined Spindle, is partly visible.

AERONAUTICS.

Brothers Wright Rumours.—A sensational statement appears in the columns of our French contemporary, *L'Auto*, for the 1st inst. The French paper declares that during the course of last autumn the Brothers Wright, with whose names, as the most intrepid and advanced experimenters in aerial free flight, all our readers have long been familiar, have executed flights, varying in length from just under 18 kiloms. up to 39 kiloms., with a motor-driven aeroplane, returning to the point of departure, and averaging a speed of 1 kilom. per minute. This simply means in plain English (and it can mean nothing else, if true) that the Brothers Wright have definitely solved the problem of aerial navigation on the heavier-than-air principle.

The source of the information is said to be a letter written personally by the Brothers Wright to the well-known French aeroplane experimenter, Captain Ferber, with whom they have been in regular correspondence—the letter also stating that they are willing to dispose of their invention to the French Government for “un million.”

It is no wonder that universal excitement in aeronautical circles (and beyond them) reigns, but there is a considerable degree of scepticism regarding the tidings. Much as one hopes that they may be true, or, at any rate, enclose nucleus of solid fact, it is impossible to avoid profound scepticism—scepticism which is expressed very forcibly in a letter by M. Archdeacon, who is himself an experimenter on the same lines, and knows what he is talking about.

Both he and others point out that it is, at any rate, an exceedingly remarkable circumstance that not a word on the subject should, as far as can be ascertained, have appeared in the Transatlantic Press. If such sensational and tremendously important experiments were being conducted in a not very remote part of the States, on a subject in which almost everybody feels the most profound interest, is it possible to believe that the enterprising American reporter, who, it is well known, comes down the chimney when the door is locked in his face—even if he has to scale a fifteen storey sky-scraper to do so—would not have ascertained all about them and published them broadcast long ago? And why should France be the most favoured nation? Why particularly, as is further alleged, should the Wrights desire to sell their invention to the French Government? Surely their own is the first to which they would be likely to apply. But this is not the only feature of the situation which raises suspicion. There is the question, what have the Wrights got to sell? That they could obtain valuable patents for their machine is, unfortunately, very doubtful. It is their skill and their resource, and that alone, which have enabled them hitherto to effect the triumphs which we know them to have accomplished. Their apparatus may present features of novelty, but it is reasonably certain that even their old non-motor-driven apparatus was one which nobody but the Wright Brothers themselves could succeed in using. It was like the bow of Ulysses, which only he could wield. Skill and manual dexterity slowly learned through a hundred failures cannot be sold, and cannot even be communicated. The first reptile which, sometime in the Jurassic or Triassic age, fleeing in front of a hotly-pursuing Plesiosaurus, found that he could toboggan down a plane of air on his membranous fore-legs, and gradually learned how to do it, was probably able to hand on his acquired knowledge to his progeny,

and in some such way, no doubt, the race of Pterodactyls was evolved. Skill of the kind the Wrights appear to have developed can be inherited, but it can scarcely be communicated—far less sold; and they are not the sort of men one associates either with pecuniary graspingness or empty bluff. It seems quite certain, at any rate, from our French contemporary, that Capt. Ferber has received a letter from them declaring that they have been successful, but at present that is about all we really know, and must wait in patience for further disclosures. Doubtless, we shall soon know the real facts of the matter, for the publications in *L'Auto* are exciting such an amount of attention that it will be impossible for the Brothers Wright to permanently maintain their usual Sphinx-like silence.

FROM information conveyed to the Press by Mr. Rawson, who, it will be remembered, was associated with Dr. Barton in the building of the airship which was so long a permanent feature in the grounds of the Alexandra Palace, it appears that a “client of his” has invented a machine of the aeroplane type which will only cost £150 to build, and will have a lifting power of 250 lbs. per horse-power employed in it. It is also said to be thoroughly controllable and manœuvrable, at least this is what is concluded from the behaviour of a model some 4 ft. square. Unfortunately a good deal of allowance has to be made when results obtained with models of this size are applied to machines on a larger scale. Mr. Rawson appears to look upon this new flying machine as having solved the problem of aerial navigation. We hope his view may prove to be correct.

COUNT ZEPPELIN has made a further ascent with his airship on Lake Constance. At the start an accident occurred to the motor, but after that was put right he was able to continue his experiments, executing numerous curves with the navigable balloon. Altogether eleven passengers occupied the car, and Count Zeppelin declares himself thoroughly satisfied with the results.



MOTOR CYCLING.

Auto-Cycle Club Fixtures for 1906.—The provisional list of fixtures for next year has been issued by this club, and includes the following:—

January	...	First Quarterly Trial.
May	...	Open Hill-climb.
“	...	Selection Trials for International Cup.
“	...	International Cup Race.
“	...	Tour to Austria.
“	...	Land's End to John o' Groat's Trial.
July or August...	...	Penalty Run.
August...	...	Annual Six Day's Reliability Trial.
September	...	Consumption Trial.
“	...	Annual Race Meeting.
October	...	Passenger Motor Cycle Trial.

The Land's End to John o' Groat's event, which is open to all types of motor cycles, should be the means of obtaining much interesting data, as the competitions of this club are usually carried out on extremely sound and practical lines. The details of this event have not yet been settled and possibly, therefore, suggestions might be made by those interested, so that the committee of the club may take them fully into consideration when dealing with the regulations governing the trial.

The Tour de France.—The itinerary of this motor cycle event of the Auto Cycle Club of France, to be held from May 13th to 14th next year, is now officially confirmed with the daily routes given by us in our issue of November 18th. The total distance of the tour will be 2,723 kilometres.

CLUBS AND ASSOCIATIONS.

The British Empire Motor Trades Alliance. First Annual Dinner.—On Monday last, the 4th inst., the Alliance held their first annual dinner, at the Holborn Restaurant, with Mr. H. Austin in the Chair. It is likely—and it is surely to be hoped—that this first dinner of a society, founded for the furtherance of the British automobile industry, will, in years to come, be looked upon as an historical event in the annals of automobilism. This is not so much for what the function was, as for what it portended, and for the views expressed by prominent men present about their outlook on the industry. There can have been few of those who attended who had not at some time in their careers handled foreign cars in the English market, and as Mr. S. F. Edge said, when replying to the toast of "The British Industry," it was to their credit to have done so, seeing it was due to their having conducted profitable businesses then that they were now so well able to encourage home productions. There was a time when foreign cars were fashionable merely because they were foreign cars, but this, Mr. Edge said, was more than on the wane, in fact, he felt quite convinced, since the Olympia Show this year, that the time had come when of two equally priced cars, the prospective purchaser gave preference to that of English construction. There are many other signs of the times, too, which have an important bearing on the British industry, and Mr. Edge did not fail to draw attention to the fact, which is occasionally overlooked, that for some time past the British industry has been increasing out of proportion to the importation of foreign cars, and that there is every prospect of finding next year's returns showing an actual superiority in money value. To carry the question even further, there is now a demand for English cars abroad, and although at the present moment the duty in France is not exorbitant, yet it might not be long before English firms would find that the only way they could profitably sell their cars in that country, would be to construct them there—in which case, of course, the French, and not the English, workmen would get the benefit.

There is always a fascination about a clean sweep, and Mr. C. S. Rolls drew attention to the desirability of giving particular encouragement to the manufacture of British accessories by specifying the use of English made lamps horns and other fittings on entirely British cars. In this Mr. Austin concurred, and he further drew attention to the fact that although it might appear to be a small matter, yet as the present importation reached a value of £500,000, it was obviously a section of the industry worth more attention.

Not unnaturally the question of a separate Exhibition for British cars formed a theme in most speeches, but on the whole opinion was in favour of showing English made goods against those which are imported, as is done at the present time. Mr. Austin, especially, was careful to urge the fact that the new institution was in alliance with, not antagonistic to, the Society of Motor Manufacturers and Traders, and Mr. Sidney Straker, president of that society (who replied to the toast of the guests), expressed it as his opinion that the question of a separate show was one which could not help coming to a natural head in due course, and that it would then be more a case of necessity than of desirability. Incidentally, too, Mr. Straker referred to the large amount of British capital invested in the importation of foreign made cars into this country as a matter which should not be overlooked.

Speaking about the practical organisation of the B.F.M.T.A., Mr. Claude Johnson made several important suggestions which showed a laudable anxiety that the institution should be more than merely sentimental. One of these was the establishment of a Paris correspondent, who should keep in touch with French progress, and especially with the questions of entry into French-organised International Trials. In several other points—such as the matter of special awards to British cars in the Tourist Trophy Race—Mr. Johnson pointed out where the theoretical objects of the society might find a practical application. In its outlook on automobilism, Mr. Johnson likened the B.F.M.T.A. to the A.C. de France, which, he said, acted solely for the French industry, and not for automobilism as a whole, as the A.C.G.B.I. is forced to do, on account of its different constitution.

DURING last month several members were elected to life membership of the Motor Union, including the Right Hon. Viscount Newport, of Shifnal, Mr. S. F. H. Endie, of London, and Mr. A. Aston Talbot, of Llyswen, Breconshire. It is surprising that more automobilists do not avail themselves of the privileges which life membership to the Union confers, considering the smallness of the contribution, which is ten guineas.

British Motor Boat Club.—The first Annual Dinner of this enterprising club took place last week at the Hotel Cecil, when the Commodore, Admiral Sir William Kennedy, K.C.B., occupied the Chair. About eighty guests were present, and the function resulted in an extremely pleasant evening for all concerned.

Following the usual loyal toasts, which were enthusiastically received, extra acclamation being accorded to that of Her Majesty the Queen, in consequence of the day chosen being identical with her birthday,

Sir Boverton Redwood proposed the principal toast of the evening, "The British Motor Boat Club." He thought that very few clubs had a better *raison d'être* than this club. In the present early days of motor boating, such a club could confer exceptional advantages upon its members by exercising a guiding hand in developing the sport and pastime by means of racing and competitions, leading thereby to the evolution of the perfect motor cruiser and pleasure boat. The motor boat, he was convinced, had an immense future before it from the utilitarian standpoint.

Admiral Sir William Kennedy, in replying with much enthusiasm, said that he was extremely glad to give the club—which now numbered 140 members—as far as possible a helping hand, and with that object in view he was able to influence the great privilege which was conceded by the Admiralty of members being permitted to fly the blue ensign, putting them for the time being on a level with a man-of-war. He felt sure it was only red-tapeism that had prevented them from being permitted the prefix of "Royal" to their club's title. Possibly when they had done something great to distinguish themselves they might still hope for that honour. It was, he said, a great source of gratification to them all that amongst the guests were Sir Evan McGregor, K.C.B., the Secretary of the Admiralty, and Lady McGregor, who had consented to distribute later the valuable prizes which had been won during the past season. The interest which the Admiralty was taking in the petrol motor boat, he thought, was strongly emphasised by Sir Evan's presence amongst them that evening. He hoped to see in the future large sea-going vessels propelled by the petrol motor.

In proposing "The Prize Donors," Mr. R. Denys Dundas, the hon. treasurer, stated that he believed in a man having a tangible result for his efforts. For this reason, he suggested that the prizes given by the British Motor Boat Club all the year be in kind, and not take the form of cheques or money prizes. His principal reason for this suggestion was that motor boats are not like yachts, which have large crews.

Mr. Sidney Straker, replying, said he was glad the British Motor Boat Club had decided to enrol themselves as a section of the Society of Motor Manufacturers. Such an action would enable a bold and substantial front to be presented to the enemy, which to-day were very considerable. Among them were the Thames Conservancy, which was a thorn in the side of the motor boat. Therefore it was with very great pleasure that he was able to say that the Society had an affiliation arrangement with every body connected with automobilism.

In announcing that Lady McGregor would present the prizes, the Commodore said that Mr. Mawdsley Brooke had wired offering another Cup in place of the Brooke Trophy which had been won.

After the presentation of prizes had been made, Mr. Oswald Colls proposed the toast of "The Ladies and Visitors," coupling with it the name of Miss Annesley Kenealy.

A charming programme of songs and music was provided by the hosts, amongst others who were welcomed with no small appreciation by old friends being Mr. Charles Coborn.

Essex Beaumont Motor Club.—On Thursday, November 30th, at "Castle" Hotel, Woodford, a very interesting paper on the construction of a motor cycle engine was given before a large attendance of members by Mr. A. E. Lowe. Some examples of work made by Messrs. Prestwich and Co. were exhibited, and every part necessary to complete a motor cycle engine was shown, both in the rough casting and the high finished state ready for assembling. Mr. Lowe succeeded in securing the undivided attention of everyone present by explaining the technicalities in such a simple way.

Essex County A.C.—A general meeting of Essex automobilists took place on November 29th, at the Great Eastern Hotel, Bishopsgate Street, when it was formally decided to found an automobile club for the county, to be known as the "Essex County Automobile Club." The following permanent officials were duly elected:—President, the Earl of Warwick; vice-presidents, Col. Lockwood, M.P., and Col. Tufnell, J.P., D.L.; chairman, Mr. Burnett Tabrum, J.P.; auditors, Mr. W. Wynn and Mr. H. E. Halsey; hon. treasurer, Mr. W. Arckwright; hon. secretary, Mr. E. C. Tijou, 26, Great Tower Street, E.C.

Leicestershire A.C.—On Friday last week the third annual dinner of this club took place at the Grand Hotel, Leicester, when Mr. E. G. Mawbey, M.I.C.E., presided, and amongst those present were:—Hon. A. Stanley, M.P., Sir Herbert Marshall, J.P., Mr. W. B. du Pre, Colonel Powell, Captain W. Byron, Dr. Tuckett, Messrs. Moresby White, Claude Johnson, G. Goode, W. Rees Jeffreys, T. W. Lumley, C. Bennion, J.P., Booth Granger, J. McAlpin, Orson Wright, Dr. Pemberton Peake, Dr. McAllister-Hewlings, Councillor W. W. Coltman, Dr. Mitchell, Dr. Edwards, Messrs. M., P. and A. Mawbey, H. H. Wildt, H. Wildt, T. Prentice, G. Thompstone, J. A. Doran, L. Pierpoint, D. McAlpin, A. E. King, W. Harding, J. Bennett, J. Rollston, W. Taylor, J. Harris, A. P. Carryer, R. Sutton Clifford, W. Hodgson, A. H. Faulkner, J. P. Jones, T. C. King, A. McAlpin, hon. sec.

In proposing the toast of the A.C.G.B.I. and Motor Union, Mr. W. B. du Pre said that motoring, which ten years ago started purely and simply as a sport, had now developed into an industry and a commercial undertaking which was likely to change the whole face of social, economic and commercial life. He looked forward to motorists securing the abolition of the speed limit in the open country, combined with enforcements of strict regulations and penalties against dangerous driving in villages and towns, and congested traffic.

The Hon. Arthur Stanley, M.P., the chairman of the A.C.G.B.I. and Motor Union, in replying, said personally he had no fear about legislation, as he believed they had reached the low water mark in the Act now in force.

Mr. W. Rees Jeffreys, the secretary of the Motor Union, in responding on behalf of the Union, expressed his conviction that no legislation would be able to stop the motor car movement, because it had struck its roots too deeply in the country, and meant so much to the people that nothing short of prohibition by Act of Parliament could stop it.

Mr. Claude Johnson had in his hands the toast of the Leicestershire Club and its President, and he availed himself of this occasion to congratulate the club upon the splendid movement it had inaugurated amongst provincial clubs by taking out the crippled children of Leicester into the country in motor cars.

The Chairman of the club, in responding, stated that the membership of the club now was 100. He spoke highly of the manner in which the chief constables of the borough county had carried out their duty towards motorists. They had acted on broad lines and had not instituted any vexatious prosecutions. The motorists who had done wrong had been convicted and he thought it served them right. He advocated abandoning hill-climbing in public thoroughfares, and holding this class of competition on private grounds only. After careful observations he had come to the conclusion that the much-talked-of damage to roads by motor cars was grossly exaggerated. He found that the damage was very slight, especially where the road was made of good binding material.

Sir Herbert Marshall, in submitting the toast of "The Visitors," pointed out the great advantages which motor cars had conferred. The great thing was to educate the public to the fact that motoring was not in the hands of unreasonable men, and that there was a general desire on the part of motorists to minimise any unpleasantness which might arise from the use of motor cars. He hoped the motor car industry would continue to grow, and advocated the abolishment of the speed limit.

Mr. Moresby White responded, and the toast of the secretaries, Mr. A. McAlpin and Mr. Sutton Clifford, submitted from the chair, was received with acclamation.

THE North Yorkshire Automobile Club was formally launched at a meeting of automobilists at York last week.



WE have received an advance copy of *Punch's Almanack* for 1906 which is almost more effective and amusing than *Punch's Almanack* usually is. A special feature this year is a double-page colour plate by Mr. Bernard Partridge in which "Mr. Punch reviews the fashions of his reign," this being the first occasion on which colour process has ever been used in connection with the paper. Naturally enough, automobilism provides some topics for amusement, though considering the numerous ludicrous incidents that have characterised the development of the motor car, and particularly its conflicts with the police, we are rather disappointed that automobilism is not made more prominent use of, the more so as such excellent cartoons on the subject have appeared from time to time in *Punch* during the past year. However, those that do occur are amusing enough. Particularly is this the case with the drawing of a stuffed aunt in a glass case in a museum of 19 inspected by automobilists of that date, who express their astonishment that such an object allowed to run about the streets and get in the way of automobiles.

THE Automobile Association still continues to do useful work on the Brighton Road, near Surbiton, at Hindhead on the Portsmouth Road, and at the well-known stretch in the Andover district between Hurstbourne Priors and Wallop. They have been so successful, in fact, in the latter district, that the police have been content to leave the control of motor traffic entirely in their hands, the result of which, no doubt, will be that automobilists will not in the near future be called upon to "hand over" the usual munificent contributions to the local rates at the Andover Police Court.

WE knew it was sure to come, the admiration for speed is becoming so universal. A motor omnibus has positively been summoned by the London police for *loitering*! The conductor of a Road Car motor omnibus, which travelled between Piccadilly and Putney, was summoned at the South Western Court one day last week for this offence. The conductor said the car had broken down, which necessitated a long wait. The magistrate—Mr. de Grey—asked the prosecuting policeman whether, if a horse fell and a delay was caused, the police would prosecute, a question which was answered in the negative. Ultimately the magistrate let off the conductor on condition of his paying the costs of the summons.

AT OLYMPIA.—The Duke of Westminster's new Mercedes, exhibited by Messrs. Lawton, who built the luxurious body.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

STEAM CARS IN THE TOURIST TROPHY RACE.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—As a member of the Committee of the Automobile Club has seen fit to attribute my recent letter on the above subject to trade jealousy on my part of a certain car which he favours, may I be permitted to explain that for some years now I have been deeply interested in the organisation of a form of racing in which, instead of the fastest car within certain weight limits winning, the fastest car within certain fuel limits should win. The race for the Tourist Trophy was the first race run under the latter limitation.

The Automobile Club recently published their intention of admitting steam cars to the race for the Tourist Trophy under a different fuel limitation to that which is to apply to petrol cars.

Owing to the interest I have taken in this new form of racing, I gave considerable thought to this proposal and ventured to express my humble opinion that a race run under such conditions might be misleading to the public. I believe members of the Committee of the Automobile Club (except one member who good-humouredly takes chaffing exception to all letters to the Press save his own) appreciate honest criticism of the work of the club.

In order to emphasise my argument that the proposal might result in the club unintentionally causing the public to be misled, I stated that steam cars were admittedly inefficient. My ground for making this statement was that in connection with the race, which is a test of efficiency, the club had been urged to give an extra fuel allowance to steam cars, and the club had admitted the necessity of giving to steam cars a considerably larger fuel allowance than that made to petrol cars to perform the same work.

I believe that when tests are made between Plymouth and Gibraltar with a view to ascertaining the fuel-consumption of warships driven by two different power-generating systems, the terms "efficient" and "inefficient" are used.

I was writing purely of fuel consumption, and my remarks had reference to the quantity of fuel consumed and not the money value of fuel consumed, as the former and not the latter is the basis adopted by the club.

I regret if my use of the word "inefficient" may have been misinterpreted to mean that steam cars are undesirable in any way except in the sense and to the extent to which my letter referred.

Mr. Ashton Jonson is wrong in imagining that my letter had anything to do with trade motives, or that it referred particularly to the make of steam car which he uses. Mr. Ashton Jonson will perhaps kindly remember the keen interest I have taken for years in the question of the new form of racing, and also that there are other steam cars besides the particular steam car which he drives.

I still think that the club, in giving cars of a particular class more fuel than that allotted to other cars in a race in which fuel limitation is the foundation, is not taking the best means to educate the public as to the respective capabilities of various makes of cars. Of course, this is only my humble opinion, and I shall gladly bow to a decision arrived at by the collective wisdom of the committee of the club.

Yours faithfully,

CLAUDE JOHNSON.

Dec. 1st.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Referring to the correspondence that has taken place in your paper of late re the fuel for steam cars in the next Tourist Trophy Race. I notice that most of your correspondents state that the fuel allowance ought to be placed on value of fuel and not on the quantity; therefore, the steam car running on paraffin would be allowed more gallons of fuel than a petrol car. If I remember rightly, I believe the regulations for 1906 allow the steam cars a gallon of paraffin for every 16½ miles; if this is so, I should like to know if I entered a paraffin car whether the A.C.G.B.I. would allow me a gallon of paraffin for every 16½ miles, which I should certainly be entitled to if the fuel allowance was based on value.

Yours faithfully,

J. PERCY DEAN.

Salisbury, Dec. 2.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Mr. Ashton Jonson takes exception to the words, "admittedly inefficient," used by Mr. C. Johnson, when referring to steam cars in the Tourist Trophy Race; can he give any reason for the greatly increased fuel allowance which the committee have decided to give steam cars, other than the admitted inefficiency of the latter?

Yours truly,

CHAS. S. ROLLS.

Dec. 4th.

FOUR AND SIX-CYLINDER CARS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I have read the correspondence with reference to 4 or 6-cylinder engines with great interest, and as I have had considerable experience with both types, I should like to express my views on the subject.

1. Take two engines, one with six cylinders and one with four cylinders giving equal power, you will not find very much difference in the weight, but probably the 6-cylinder will be heavier than the 4-cylinder.

2. Practically no difference in vibration will be found, and the 4-cylinder will run just as slowly as the 6-cylinder with an equal load; therefore, I do not consider it advisable to make 6-cylinder engines for motor cars, owing to the extra complications and expense.

With reference to the run up the "Cat and Fiddle" Hill by a Rolls-Royce car on the top speed: this car is said to be geared to 37 miles an hour when the engine is running at 1,000 revolutions per minute. I should like to know what power this engine gives at 1,000 revolutions per minute?

I may say that I recently drove a 4-cylinder 22-h.p. Crossley car from Openshaw round by Macclesfield, up the "Cat and Fiddle" Hill to Buxton, and back to Openshaw, all on the top speed and with the greatest ease. This car is geared to 33 miles an hour when the engine is running at 1,000 revolutions per minute.

I believe there are many 4-cylinder cars that will do similar journeys on the top speed, providing they are not geared too high; and I also believe the same of 6-cylinder cars. But why two extra cylinders, when 4-cylinders will do the work just as well as 6-cylinders?

Yours truly,

W. WILSON.

Otto Gas Engine Works, Manchester.

Nov. 29th.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I am always willing to stand corrected when I am in the wrong, but Mr. Edge certainly, in endeavouring to make out his case for the 6-cylinder engine, has not only failed to prove me in the wrong, but at the same time has weakened his own position very considerably by his last letter.

To suggest that a 6-cylinder engine is not heavier than a 4 cylinder engine of the same horse power is, on the face of it, absurd.

Two more cylinders, two more pistons, two more connecting-rods, and an extra length of crank-shaft, and an extra length of base-chamber—and yet to weigh no more. I leave it to your readers to form their own conclusions.

With regard to loss of wall-heat, Mr. Edge in his previous letter admitted that the 6-cylinder was not so efficient as a 4-cylinder engine. As he has again admitted this, there is nothing further for me to say.

When, however, he seriously suggests that a 6-cylinder engine is a guarantee as to freedom from mechanical repairs, I would reply that no 6-cylinder car has yet proved in open competition that such is the case.

Petrol consumption.—Mr. Cecil Edge's *ex parte* statement on this point is interesting but not very reliable. I have heard of 6-cylinder cars which have been incapable of running a greater distance than from 8 to 10 miles on a gallon of petrol. These cars have not been 40-h.p., but of much less horse power.

I am sorry that Mr. Edge should have allowed the discussion on this matter to develop into a personal challenge as between the cars he sells and those in which I am interested. I certainly did not enter into this discussion with the idea of advertising my own cars, in which respect I may perhaps differ from Mr. Edge. My idea was to endeavour to thrash out the merits between 4 and 6-cylinder motors. As, however, Mr. Edge has challenged me, I have much pleasure in accepting his challenge with some slight modification.

In the first place it would obviously be unfair to test the 40-h.p. 6-cylinder Napier against a 40-h.p. De Dietrich, because the 40-h.p. De Dietrich is much larger and more powerful than the 40-h.p. Napier, and obviously a more powerful engine should consume proportionately more petrol.

Again, a road test would be of little use to judge the respective merits of the two types; in fact, any road test for consumption of petrol alone, without speed and power being taken into consideration, is, as Mr. Edge is well aware, worthless from an ordinary user's point of view. It simply means that the car is driven up hill and allowed to roll down every slope with the engine cut out, and as this is not the way a car is driven in the ordinary course of events, such a test is misleading. At the same time, if this is the sort of test Mr. Edge prefers I am, on my part, quite willing.

The chassis or car, however, I propose to accept Mr. Edge's challenge with, would be one of the new 40-h.p. Crossleys, which is approximately in actual horse-power the same as the 6-cylinder Napier. This would give us an excellent standard to judge the respective merits of the two types of engines.

I think also that I would be prepared to state that the condition of the tyres on the Crossley at the conclusion of the run will compare most favourably with those fitted to the 6-cylinder Napier. By all means let there be a test on these lines. I would suggest during the month of February, when I can spare a 40-h.p. Crossley chassis for the purpose.

In view of the discussion having developed into a personal one, I do not propose troubling your readers further, but I would certainly be very interested to learn what other authorities have to say on the respective merits of the 4 and 6-cylinder engines, and express a hope that the test which Mr. Edge has suggested may be arranged.

Yours faithfully,

Dec. 2nd.

CHAS. JARROTT.

SPRING WHEELS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—My attention has been called to a letter from Mr. Verdon Roe which appeared in your columns on the subject of Spring Wheels. Mr. Verdon Roe appears to have convinced himself that the movement of the wheel relative to the axle causes a change of gearing and, consequently, a loss of speed. If it were true that the eccentricity of the axle really makes the wheel momentarily smaller, then it would be possible to prove beyond question that the constant eccentricity of the axle of most spring wheels must result in a gain of speed instead of a loss. The sprocket-wheel does not change in size, and this may be considered as one arm of a lever. The normal size of the radius of the wheel, with the axle concentric, may be taken as the other arm. If the axle sinks, as Mr. Verdon Roe puts it, two inches, this arm, which is working on the ground, becomes two inches shorter, while the sprocket-wheel arm remains the same. Consequently, the engine-power on the sprocket arm must be more effective on the ground, or, in other words, the engine-power will find less resistance to motion. The engine will, therefore, work faster, causing the sprocket-wheel to make more revolutions. But the sprocket-wheel cannot turn without causing the whole wheel to turn also. If the sprocket-wheel makes more revolutions, therefore, we must have greater speed for the same power.

I may add that this argument is not mine, but was sent to me with drawings of a spring wheel, and was used as the advantage claimed because the axle was always considerably eccentric. I may be duller than other people, but it took me quite a considerable time to discover the flaw in the reasoning, which, of course, is incorrect. The explanation of the flaw in this reasoning will at the same time meet Mr. Verdon Roe's criticism. With regard to Mr. Verdon Roe's remarks as to the correct place for springs, namely, between the axle and the body, and not between the rim and the hub, he states it so positively that I feel sure he must have studied the subject very closely. As I take it, the effect of an obstacle only one inch high meeting the periphery of a wheel diameter would be as five horizontally backwards to five vertically upwards. The carriage springs can work only vertically and thus absorb the force represented by fourteen, leaving only one act as a dead shock on the vehicle. A properly-constructed wheel can absorb both the backward and vertical component force of a shock. Besides this the function of a spring is more to do with the running of a car than I have space to enter into here.

Yours faithfully,

Dec. 2nd.

CLIFFORD HALLÉ.



THE "Vanguard" motor omnibus tour, which was announced to take place through France to the Riviera, has, it is reported, been indefinitely postponed.

No less than 51,322 people went on board "Napier Major" at the recent Olympia Show to inspect this remarkably fine sea-going motor boat. The record number of visitors in any single hour was 681

Royal Automobilists.—Not least among the advantages of being a reigning monarch may be reckoned the circumstances that those who enjoy this enviable position can have as many motor cars as they wish for. It is noticeable to what an extent the Crowned Heads of Europe have availed themselves of their opportunities in this respect. Not only has King Edward already a large number of cars, but his stud will be considerably augmented when the new garage which is under construction at Buckingham Palace is completed. The German Emperor possesses a larger number, it is said, of automobiles than any other reigning monarch, and he has recently added at one swoop a batch of seven to his collection. The Kings of Italy, Belgium, Spain, and Portugal are all great enthusiasts of the motor car and each are providing themselves with a fine collection. The same may be said of the Czar of Russia, and the King of Greece, while the Khedive of Egypt, the Shah of Persia, and the Sultan of Morocco are reckoned amongst motor enthusiasts. The Prince of Wales, too, as we have recorded, has added to his collection a 35-h.p. Daimler car of the 1906 type.

THE town of Klatan, which, we believe, is in the Austro-Hungarian Empire, is inhabited by a particularly lazy and artful bull, which, when driven by the local butchers in the direction of the slaughterhouse, lay down on the road on his back, and stolidly refused to budge. No persuasion of the familiar kind would induce him to rise, so when Count Alexander Kolowrat was seen approaching on his motor bicycle, a deputation of butchers rushed out to meet him, and suggested that if he would ride past the recumbent bull at full speed, the terror which his motor cycle would doubtless inspire might galvanise the quadruped on to his feet. The Count performed the operation, and the explosions of the exhaust, unmuffled for the occasion, as he whizzed past the bull produced the desired effect. The reclining one rolled over, got up, and at once took to his heels. Count Kolowrat then held a reception of the butchers, who expressed their hearty gratitude and cheered him as he continued his journey.

AT OLYMPIA.—A three-seated Napier Landulette with a new type of body by Mulliner and Co., which isolates the driver and allows a comfortable third seat to be arranged inside the carriage.

AT OLYMPIA.—A large touring car exhibited by the Maudslay Motor Company. It has seating capacity for five passengers in the carriage.

A FURTHER development of the notion of approaching the South Pole by motor car is attributed—we purposely refrain from using the word “credited”—to a Belgian adventurer, who bears the appropriate name (if he really does bear it) of Arctowski (pronounced Arctoffski). He proposes to put his motor car on skates (or ski) for travelling over the ice. If he ever gets in this way to the South Pole, he will be entitled to add the prefix, “ant,” to his patronymic, and dub himself Antarcowski. But, in the meantime, we rather fancy his suggestion is just a little bit off-ski.

SINCE writing the above, we have learnt that M. (Ant)Arctowski is continuing to develop his ideas for getting to the Antarctic Pole, and “calculates” that, with a motor car such as he proposes to have built, 100 miles a day would be quite easy work on the ice of the Antarctic Continent. The motor car is to be a sort of mixture of automobile and sledge. It is to have a sledge runner which will take most of the load, and thick wheels a foot wide, covered with leather instead of rubber, with thick wedge-shaped nails projecting from their circumference. The car is obviously intended, therefore, to run upon the runner and be driven by the nail-embellished wheels, the pressure on the wheels being varied by raising or lowering the runner. Automobiles have been made, we believe, in the United States and Canada to go on snow and ice by some such means as this, and given a good surface, we have no doubt that M. Arctowski's method might produce locomotion. He seems to be of the opinion (having been there, it is stated, before) that from the points which you land on the Antarctic Continent, to quite near the Pole, are enormous stretches of *smooth* snow and ice. Certainly Captain Scott's experiences were quite different. There was very little smoothness about it, and the crevasses were frequent and tremend-

ous, while in places enormous changes of level were encountered. That is the reason why, when dealing with the subject above, we took a non-serious view of M. Arctowski's proposals. We do not feel sure that his more recent suggestions really necessitate a change of view.

THE idea of building motor cars, not merely to run over ice and snow, but of reaching the South Pole by this means, is said to have found a supporter in Mr. Bruce. He intends to carry on experiments with motor cars designed in accordance with his ideas probably on Ben Nevis or in Norway, the general design of the sledge being an arrangement mounted on runners with wheels specially designed “to give the tractive power of dogs' feet.” Precisely what the tractive power of dogs' feet may be is a question on which experts will probably differ, and they will probably differ more as to the form of wheel which should be adopted to obtain that result. The present suggestion is that leather tyres with cross-ribs should be employed, while springs are to be used “to accommodate the runners to the inequalities of the ice.”

THE Hon. Mr. Lamb, T.C.S., having been posted to duties outside the Presidency, has resigned the Presidency of the Bombay Motor Union, and the office has been accepted by Major-General Greenfield, Commanding the Bombay District.

A SCHEME is in course of being completed for supplying farm and dairy produce direct from a producer in Essex to the consumer in London by means of motor wagons. A meeting was convened this week with this object under the chairmanship of Viscount Deerpur, and the details of the scheme are to be gone into and fully considered shortly. Under the proposed plan, purchasing and collecting depôts are to be established at Ongar, Dunmow, Braintree, and Chelmsford, and the motor vehicles will serve certain districts in London, which will be gradually extended.

AT OLYMPIA.—The Six-Cylinder Rolls-Royce Pullman Limousine, which has seating capacity for seven passengers, and is fitted with electric light, telegraph, and every convenience for luxurious travelling by road.

Session of Parliament to authorise the establishment of a service of motor 'buses.

On Saturday, the first purely Metropolitan Motor Fire Station was opened in London in Red Lion Street, Wapping. The equipment consists of a motor fire engine, and motor combination comprising a first-aid machine and a fire escape, these being manned by an officer and seven firemen.

In spite of the enormous buildings now nearing completion of Argyll Motors, Limited, at Alexandria, near Glasgow, the directors have already decided to further extend these works, the plans which, to this end, are already in hand providing for an expansion to almost double their present extent. The scheme of the buildings as originally laid down was so arranged as to render any addition to the works at any time an easy matter, the manufacturing shops being built at parallel lines running at right angles to the administration building. Thus any one of these buildings can be extended to any desired length, within the limits of the ground, without disturbing

the regular routine of the workmen in any way. The shops, as at present nearing completion, have an average length of about 600 feet, and it is to these that the new extensions are to be added. Even then the directors will not be hampered for further building, as the ground which they have already acquired permits of any of their shops being enlarged to about three times their present length. At the Olympia Show, we learn from the Company, orders were taken for over 500 cars. Such practical evidence of the vitality of the business, therefore, they consider as fully justifying their policy of further expansion.

One of the latest De Dion Cars fitted with handsome Limousine body. It is provided with a 24-h.p. four-cylinder engine, placed under the new De Dion bonnet, has a single-disc-clutch and sliding-spur-wheel gear, giving four speeds and a "reverse." A propeller-shaft transmits the power to the differential casing, and the road-wheels, which run on a stationary axle, are driven direct by cardan shafts on the well-known De Dion principle.

Driving Certificates.—The Automobile Club has been holding examinations for the purpose of granting certificates for car driving and mechanical proficiency at Poole, Southsea, Worthing, and Canterbury, as the result of which examinations 24 candidates have been awarded the former distinction and 15 have received a certificate for mechanical proficiency. The names of these candidates and the places where they were examined are as follows:—

Poole.—Driving Certificate: Arthur Douch, Robert Banwell, W. G. Matthews, Frederick Coles, James Difley. Mechanical Proficiency: W. G. Mantell, Cedric French, Frederick Coles.

Southsea.—Driving: P. H. Samways, W. J. Barton, H. A. Hensley, N. C. S. Rose, J. C. Jarvis, L. M. Steele, A. H. Terry, Sergt. Cannon, R.M.A. Mechanical: P. H. Samways, Sergt. Kelly, R.M.A., Sergt. W. Cannon, R.M.A., Sergt. H. J. Neal, R.M.A., Gunner A. Smith, R.M.A., Gunner R. J. Welch, R.M.A.

Worthing.—Driving: J. E. Stroud, C. Carver, P. J. Turtle. Mechanical: M. F. Mievill, A. E. Bradshaw, J. E. Stroud, C. Carver, P. J. Turtle.

Canterbury. Driving: F. G. Wyborn, W. Mugeridge, Oswald Fuller, A. M. Boulter, L. V. Cann, W. J. Cann, A. H. Ellis, Mrs. M. F. Phelps. Mechanical: L. V. Cann, W. J. Cann.

It has been decided by the Sheffield Automobile Club that the Motor Show at Sheffield is not to be held by the club, but the club will grant its patronage to a privately organised exhibition in the town for next year.

On Friday of this week Sir William Preece, K.C.B., F.R.S., delivered the prizes at the Annual Prize Distribution and Conversazione at the Northampton Institute, Clerkenwell, E.C.

THE Todmorden Town Council have determined to promote a Bill in the next

The above photograph shows Mr. John Hargreaves' 80-h.p. Gordon-Bennett Napier Racer in the innocent garb of a very fine ordinary touring vehicle. This is the same vehicle which Mr. Hargreaves drove in racing trim in the last Eliminating Race held in the Isle of Man, when the car and its driver were selected as reserves for England in the actual Gordon-Bennett Race.

LEGAL INTELLIGENCE.

The Straker Steam Vehicle Company (Limited) v. Lehwess.—Judgment was given in this case by Mr. Swinfen Eady in the Chancery Division on Thursday in last week. In this action, the plaintiffs sought for an injunction against the defendant to enforce an agreement dated October 28th, 1904, and also applied for an injunction to restrain him from selling in England or in English Colonies any motor vehicles manufactured by Messrs. Bussing and Co., of Brunswick, while they further sought to restrain him from "representing or stating that the plaintiff Company is not entitled to all rights and interest in relation to the sale or purchase in England or the English Colonies of the motor vehicles aforesaid." The action arose out of arrangements made between Dr. Lehwess and Messrs. Bussing, of Brunswick, in the first instance, by which Dr. Lehwess was to act as their agent in this country. In pursuance with these arrangements, the defendant, Dr. Lehwess, contracted both with Messrs. Bussing and the Straker Company for the latter to place certain orders for chassis with the former, transferring the benefit of his agreement with Messrs. Bussing to the Straker Company for a consideration to himself of £1,000. Subsequently, the defendant, it was alleged, endeavoured to interfere with the business by threatening Messrs. Bussing, and attempting to induce them to believe that the Straker Company were not acting fairly with them. At the same time it was stated that he had got together an English syndicate to whom, from the Judge's summing up, it would seem he endeavoured to procure the transference of the agreement which he had already assigned to the Straker Company. Mr. Justice Swinfen Eady used very strong remarks in his judgment, referring to letters which the defendant had written to Messrs. Bussing in the following terms:—

"The defendant was not called to give evidence and his counsel said he would not attempt to justify them, and perhaps it will be sufficient if I say that the letters are quite unjustifiable, because they indicate a course of dishonest and fraudulent conduct which it is impossible to justify."

and added,

"What took place was this. The defendant, having arranged for this sale under which he was to receive £1,000, then proceeded, as far as he could, to take away from the purchasers and to secure to himself the benefit of what had been sold."

His Lordship finally granted the injunction asked for, ordered the defendant to pay the costs of the action, and allowed enquiry as to damages, the costs of the enquiry being reserved.



THE Crown Agents for the Colonies require for immediate shipment to Ceylon a petrol motor car from 20 to 30-h.p. (to seat six persons), capable of travelling at 20 to 25 miles per hour on the flat, and of climbing a maximum continuous gradient of 1 in 20. A gear-driven car, with roof suitable for carrying light luggage, is preferred, and it must be new or in perfect order. Full particulars in writing should at once be forwarded to the Crown Agents for the Colonies, Whitehall Gardens, S.W.

COMMERCIAL POINTS.

MESSRS. GAUTHIER AND Co., of 60, Great Marlborough Street, inform us that their representatives will be at the Paris Salon in constant attendance at the Malicet and Blin, Bassée-Michel, and Ballot and Co's. Stands, and they will be pleased to see any members of the trade there, whether they come to purchase or not.

MR. F. F. WELLINGTON, representing the British Automobile Commercial Syndicate, Limited, will be at the Paris Show on the stand of Messrs. Spyker Brothers, of Holland, where a representative of the firm will also be present to afford information to English visitors to the Exhibition.

MR. GLYNN, of the Gaulois Tyres, Limited, advises us that he will be in attendance during the Paris Salon, at the stand of Messrs. Bergougnan and Cie., manufacturers of the Gaulois tyres.

THE Austin Motor Company, of Longbridge Works, Northfield, near Birmingham, are now in a position to undertake repairs of all makes of cars, as they have installed a department especially for this purpose. Petrol, lubricating oils and spare parts for any make of car will be obtainable and a stock of tyres of all sizes will be kept, and accumulators can at any time be charged. As the works are situated on the main Bristol road close to Birmingham, the address of the Austin Motor Company should be made careful note of by automobilists.

THE Ryknield Engine Company, of Burton-on-Trent, have issued a circular in regard to certain misleading paragraphs which have recently appeared in some of the trade papers giving the impression that the business of the Company is about to be discontinued. In their communication they state the true facts of the case as follows:— "Ever since the Tourist Trophy Race, in which the 15-h.p. Ryknield car was one out of two or three cars which did an absolute non-stop run, negotiations have been proceeding with a view to strengthening the financial position of the business, and so making it possible to take full advantage of the demand arising from the good performances of our cars both in public trials and in the hands of private users. You will understand while these negotiations were in progress it was extremely difficult for us to make a statement regarding the position. We are pleased to inform you that our arrangements are now practically completed, and to facilitate this re-arrangement the Ryknield Engine Company, Limited, goes into voluntary liquidation, and the whole business will be taken over by a new company now in course of formation, which will probably be known as the Ryknield Motor Company. In the meantime, the business will be carried on without intermission, and we hope to have the first of a new type of 20-h.p. 4-cylinder car on the road by the end of this year."

LADY ALWYNNE COMPTON has just ordered a second Crossley car of the 1906 model, as a result of her pleasing experience with her first Crossley. The new car will be of the *laudalette* type, the carriage body having been entrusted to Messrs. Hooper and Co.

A MOTOR ROAD SWEEPER AND SPRINKLER.—There has recently arrived in London a machine for watering and sweeping the streets which is propelled by a petrol engine. It is the invention of M. Muller de Cardévar who has already made trials in Paris which are said to have been so satisfactory that the capabilities of the machine may be favourably compared with those of six sweepers and sprinklers drawn by horses. The brush, which is chain-driven, can be raised from the ground when not required, and the vehicle can then proceed on its top speed to its next scene of operations. Immediately in front of the brush is a water sprinkler, and additional sprinklers also project behind. In use, the machine is said to travel at about 5½ m.p.h.

NEW ISSUES.

City and Suburban Motor Cab Company.—The prospectus of this company was issued last week, the whole of the share capital of £100,000, in £1 shares, being offered for subscription. The cabs to be employed are those known as the "Unic," manufactured by Messrs. Georges Richard and Co. The preliminary expenses in this company are to be paid for by the sum of £15,000 in cash, in the event of £30,000 being subscribed. If a less sum is subscribed, the payment is to be 50 per cent. of the cash subscribed, the balance being paid in shares. The directors are Sir Henry Seton Karr, C.M.G., M.P., Colonel Anstey, Messrs. Godfrey C. Isaacs, J. O. Lawson Johnston, J. Cumming Macdonald, M.P., and C. Wyndham Quin.

The Associated Omnibus Company, Limited.—An issue of 50,000 5 per cent. first mortgage debenture stock at par was made this week by this company. The purposes of the issue are for considerably increasing the motor bus services, which the company have already found of a profitable nature, from the number which they have had running on various routes worked by them.

The Automobile Cab Company Limited.—The share capital, £100,000 in £1 shares, of this Company has been offered for subscription this week, the Company being formed for the purpose of placing motor cabs on the London streets, each of which will be fitted with a taximeter. The vehicles which will be chiefly employed are those supplied by the Central Motor Car Company,

Limited. The Directors are Sir James T. Ritchie, Bart., J.P., Messrs. H. E. Wootten, B. H. Morgan, C.E., and S. A. Chambers. The business manager is Mr. Samuel Michaels, until recently President of the London Cab Drivers' Union. The preliminary expenses are placed at £7,000, for which sum Dewhurst & Co., Limited, undertake all such expenses down to the first general allotment of shares. This amount is besides underwriting commissions.

NEW COMPANIES REGISTERED.

Automobile Cab Company (Limited), 7 and 8, Walbrook, E.C.—Capital, £100,000 in £1 shares. Object, to adopt an agreement with the Central Motor Car Company Limited.

Motor Traction Company, 1905 (Limited), 14, Great Winchester Street, E.C.—Capital, £60,000 in £1 shares. Object, to acquire part of the assets of the Motor Traction Company, Limited.

Rapid Road Transit Company (Limited).—Capital, £10,000 in 9,000 shares of £1 each, and 20,000 shares of 1s. each.

"Rocket" Motor Omnibus Syndicate (Limited), 79, Salisbury House, London Wall, E.C.—Capital, £6,000 in £1 shares. First directors: W. S. Leefe, F. W. T. Thorp, H. Hiscott, and E. H. Saunders.

Street Motors Limited, 76, York Street, Westminster.—Capital, £2,000 in £1 shares. Object, to carry on the business of manufacturers of and dealers in motors, motor cabs, &c.



BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

Patent Specifications Published.

Applied for in 1904.

16,597.	
16,832.	
23,037.	
24,193.	mitting
25,751.	tanks.
26,536.	
27,734.	order.

Published November 30th, 1905.

24,172.	J. TYLOR AND SONS AND A. P. DONNISON. Carburettors.
24,205.	C. W. PRADÉAU. Wheels.
24,461.	W. C. KIMBER. Variable speed friction gearing.
25,615.	H. BARTHEL AND P. MODLER. Starting and free running gear.
26,503.	W. J. CROSLLEY AND J. ATKINSON. Intl. combin. engines.
28,133.	W. F. SCHMOELE. Self-cooling explosion engines.
28,627.	E. UHLENHUTH. Turbine engines driven by combustible gases.
29,378.	S. F. EDGE. Combined foot rest and tool box.

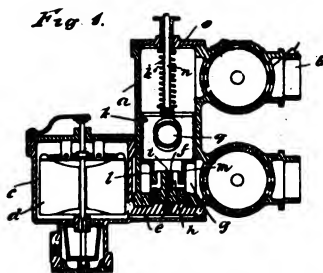
Applied for in 1905.

Published November 23rd, 1905.

698.	J. B. LIVESEY. Metallic tubular spoke wheels.
333.	H. W. STANER. Anti-side slip device.
1,219.	G. E. WRIGHT AND H. PARKER. Internal combustion engines.
1,492.	G. S. OGILVIE. Wheels.
3,017.	A. D. JENKINS AND D. E. HIPWELL. Resilient wheels.
3,214.	E. R. MUMFORD. Aerodromes or flying machines.
3,990.	C. AND H. DUBAUX. Aeroplane machines.
4,056.	INTERNATIONAL STEAM PUMP CO. Internal combustion engines.
6,399.	C. REYNOLDS. Driving belts for motor cycles.
10,308.	J. WILKINSON. Motor cars.
10,639.	E. J. SWEDLUND. Variable-speed gearing.
14,853.	J. N. PAXMAN AND DAVEY, PAXMAN AND CO. Vaporizers.
14,948.	A. S. F. VAN DE PUTTE. Vaporisers for benzene and petroleum motors.
16,822.	J. H. GOODMAN. Elastic wheels for heavy vehicles.
19,196.	A. HERRISON. Levers for change speed gears.

Published November 30th, 1905.

1,354.	H. CAMPBELL. Carburettor.
5,439.	F. W. BENNETT AND H. MONK. Clutches
6,483.	G. GREEN AND OTHERS. Cooling systems.
8,207.	J. VON KOROKNAY. Universal joints.
9,263.	H. SAURER. Valve gear.
16,021.	G. E. J. ALPHANDERY. Removal of valves.
17,291.	M. ANDRIE. Elastic fork for motor cycles.
20,294.	E. W. BOHLE. Brakes.
20,457.	W. W. JONES AND J. S. HOLMES. Springs applicable to the spokes of wheels.



admixture of air and gas or vapour entering the carburettor before passing to the engine cylinder. There are three figures. Fig. 1 is a vertical central section; *a* is the body of the carburettor, *b* the passage leading therefrom to the engine, *c* the usual float-chamber containing the oil or spirit to be fed to the carburettor, *d* the regulating float therein, and *e* the passage leading the oil or spirit from the chamber, *c*, to the carburettor. In order to allow the engine to be worked economically at high speeds the plug or nozzle, *f*, in the carburettor, *a*, is made of comparatively large diameter, and surrounded by an enclosed annular air-chamber, *g*. Passages, *h*, are formed in this body of the plug or nozzle, *f*, which conduct air from this annular chamber, *g*, to points more or less closely surrounding the aperture, *i*, of the nozzle, *j*, which admits the spray of oil or spirit, and projects it against a baffle or against a heated tube, *k*, for example. The oil or spirit spray and the air are thereby mixed in the proportions suited for starting the engine. In the mixing-chamber above the plug or nozzle, *l*, and adapted to slide more or less air-tight therein, is an open-ended vessel, *m*, of cylindrical or other convenient shape, the lower part of which is arranged to close more or less the annular air-chamber and form a valve, *n*, which rests upon a valve seat, *o*, formed on the outer upper edge of the plug or nozzle, *f*. This open-ended vessel, *m*, may be furnished with a stem, *p*, which passes through the cover, *q*, of the carburettor casing, *a*, whereby the vessel, *m*, may be raised or lowered as required, a spring resistance, *r*, being provided if desired. This vessel, *m*, may be actuated by the suction of the piston in the engine cylinder by hand or by the governor.—November 15th, 1905.

of one is made to transmit motion to the other by two or more friction wheels connecting the two cones. These friction-wheels, *e*, are arranged so that they may be moved axially so as to connect either the two smaller ends of the cones or the two larger ends of the cones, *c* and *d*, or any intermediate parts, the two cones being forced together by a spring, *f*, and kept apart by the friction-wheel, *e*, thus obtaining the necessary pressure between the surfaces of the cones and friction-wheels. The position of the friction-wheels is varied by an arrangement of collars, *g*, sliding on fixed axes, *h*, and actuated by interior screws, *i*, which move nuts, *j*. These nuts are provided with keys which pass through slots in fixed axes, *g*, and engage the key-way in *j*, the wheels, *e*, running loose upon the collars, *g*, and the screws, *i*, being actuated by bevel gear, *k*, and *l*, with a separate small pulley, *m*, which is made in one piece with *k* (outside the main pulley), and is actuated by a chain, *n*, hanging down within easy reach of the operator. The shafts, *g*, are fitted in a frame, *r* and *s*, fixed by set screws to the collar, *p*, and a rod or rods, *q*, *q*, is fixed to this collar, the rod or rods being attached to the ceiling or wall, thus preventing the frame, *r* and *s*, from moving. The pulley, *h*, is fitted with its boss on a loose collar, *u*, on the shaft, *a*. If the shaft, *a*, is driven it carries with it the cone, *c*, and this cone through the friction-wheels or rollers, *e*, communicates motion to the outer cone, *d*, which carries the pulley, *h*, and according to the position of the friction-wheels or

The Automotor Journal, December 16th, 1905.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1906.	
Jan. 15-20 ...	Brighton Automobile Exhibition.
Jan. 17 ...	Auto-Cycle Club Dinner.
Jan. 19-27 ...	Birmingham Motor Show.
Jan. 26-Feb. 3	Crystal Palace Motor Show.
Jan. 27 ...	Tri-Car Hill-Climb, Lewisham A.C.
Feb. 1 ...	*4,000 Miles Tyre Trials.
Feb. ...	*Lamp Trials.
Feb. 9-17 ...	Liverpool Motor Show.
Feb. 9-17 ...	Newcastle Motor Show.
Feb. 23-Mar. 3	Manchester Motor Show.
March 9-17 ...	Glasgow Motor Car Show.
March 24-31	Cordingley and Co.'s Motor Show.
Aug. ...	*Van Trials.

Foreign Events (Trials, Races, &c.).

1905.	
Dec. 8-24 ...	Paris Automobile Salon.
Dec. 31 ...	Coupe de Salon, Paris (Motor Boats).
1906.	
Jan. 13-20 ...	Brussels Exhibition.
Jan. 13-20 ...	American A.C. Show, New York.
Jan. 17-20 ...	Western Indian Trials.
Jan. 22-27 ...	Ormond-Daytona Beach Races.
Jan. 26-30 ...	Calcutta Motor Trials.
Feb. 3-18 ...	Berlin Motor Show.
Feb. 3-18 ...	Turin Automobile Show.
March 15-18	Vienna Motor Exhibition (A.C. of Austria).
April 1-15 ...	Monaco Motor Boat Exhibition and Races.
April-May ...	Milan Exhibition.
May 5 ...	"Targa" Florio (Sicily).
May 13-14 ...	Tour de France (Motor Cycles and Voiturettes).
June 10-16 ...	Herkomer Cup.
June 28-29 ...	Kiel Motor Boat Races.
Sept. 15-16 ...	Mont Ventoux Hill-Climb.

* Automobile Club of Great Britain and Ireland Events and Papers.

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PASSING EVENTS.

Mr. Justice Grantham at Full Charge.

WE are becoming more and more doubtful whether Mr. Justice Grantham is really to be taken seriously. His remarks at the trial of Charles Guillemard, on which we commented last week, were exceedingly funny to listen to and read for anyone but the unfortunate automobilists who were fired at. But we assumed it was Mr. Justice Grantham's first attempt to be funny in a serious case and did not expect an early repetition of similar injudicious remarks—at any rate for some time. His charge to the Grand Jury, however, in the case of what one might popularly term the "cyclist scout perjury trial," but which was officially known as *Rex v. W. T. Whittington Jones*, was really more than a joke. The case was one of those very questionable indictments in which a Grand Jury would have been fully justified in throwing out the bill, and this it would seem—judging by his charge to the Grand Jury—was precisely what his Lordship was afraid of. Said Mr. Justice Grantham:—

The police very properly did all they could to see that the speed limit should not be exceeded, and in this they would have the sympathy of the general public. Of late there had been a new development of the warfare between the police and motorists by the introduction of cyclist "scouts," men whose sole object appeared to be to assist in evading the law by going about the country warning motorists who were infringing the statutes. It was not surprising that the police resented this practice, and tried to catch the law-breakers, *and so they took proceedings against this defendant, who they alleged had sworn falsely in order to get a motorist off who was driving too fast.* They knew how constantly people committed perjury in courts of justice, and when a serious case arose it was quite right that proceedings should be taken against the offender.

Mr. Justice Grantham's tacit admission should be noted in the passage which we have italicised, that the prosecution was instituted mainly, if not solely, because the police were annoyed.

Creating Prejudice.

OF course that is not the worst of the matter. Even where the Grand Jury finds a true bill, as they do in the majority of cases, an alleged culprit has a fair trial before an ordinary jury subsequently. Ordinary jurors, however, are liable to prejudice, and this is particularly so in country districts in cases where the automobile is concerned. It is not for a moment to be supposed that the remarks of the Judge in charging the Grand Jury pass unnoted by the ordinary jury. Of course, a judge summing up the case is in a different position altogether. He has heard the evidence. But these remarks were made by this extraordinary Judge before any evidence had been tendered. If similar observations had been made by a newspaper we know what would have happened. Under the circumstances it is a triumph for good sterling British common sense and the spirit of fair play that the accused was ultimately acquitted.

A Campaign of Intimidation.

HAD the prosecution for perjury succeeded, it would, of course, have been the first step in a regular system of persecution of the employees of the Automobile Association and all others who dared to attempt to counteract the trappists' methods. In fact, it would have meant that before long to swear against a policeman would have involved the danger of hard labour or penal servitude. It would have meant nothing less, for there was no serious evidence against Mr. Jones but that of the interested policemen. If a prosecution of this kind succeeded in one case, the police would soon have

become the absolute masters of the destiny of everybody, for soon no one would dare to swear against them. Fortunately, the decision the jury arrived at has put a summary stop to any such intended campaign, and we do not anticipate many attempts to repeat it. Considering Superintendent Marks' record, considering the things that he has been compelled himself to admit under cross-examination in the witness-box in automobile cases, and considering the apparently vindictive action attending the arrest, we are not at all certain that Mr. Jones would not have a very good prospect of success in an action for malicious prosecution. In any case, we should like to see the Automobile Association try it, for even if they failed, it would warn police officials that they cannot bring these sort of charges with absolute impunity.

A View Confirmed by the Judge.

If anybody imagines that this is an exaggeration of the case, that this was only an exceptional occurrence, and that prosecutions for perjury in such cases would not have become general, we would refer him to the remarks made by Mr. Justice Grantham, which we have quoted above. He there says that the objects of a cyclist scout appear "to be to assist in evading the law . . . and that it was not surprising that the police resented this practice . . . so they took proceedings against this defendant." There is accordingly all the more reason to congratulate the Automobile Association on Mr. Jones's acquittal. But *nemo me impune lacessit* is an excellent motto, and the Automobile Association would certainly make their position safer in future, and ensure that malicious charges of perjury of this kind are not repeated, by instituting, as we have suggested, an action for malicious prosecution.

Malicious Prosecution?

THE Automobile Association (and in this matter perhaps the Motor Union may back them up) ought, therefore, seriously to consider whether this is not a case in which the statute against malicious prosecutions might be satisfactorily invoked. The opinion of Mr. Gill, at any rate, was pretty clear. He pointed out in open court that

"the proceedings could and should have been taken by summons, inasmuch as Jones could have been found, and if a warrant had been necessary it should have been executed at a time when he could at once have been brought before a magistrate and bail obtained."

Mr. Gill characterised these proceedings as "a gross outrage and scandal." These are strong words from so distinguished a barrister, and one with such an extensive experience of criminal cases! It really seems a pity that the people who have done what they could to blast the whole future of a harmless member of society should be allowed to get off scot-free.

An "Alice-through-the-Looking-glass" Summing Up.

THE summing up of Mr. Justice Grantham in the actual trial was, if possible, more prejudiced against the automobile movement generally and the unfortunate prisoner Jones in particular, than his "charge" to (we had almost said *at*) the Grand Jury. But it had the saving merit of being one of the most muddled pronouncements we have ever heard from the Bench, and such a general mix-up that Mr. Gill had on several occasions to set his Lordship right as regards the actual facts. It would have been highly funny if it had not been so prejudiced and virulent, and if it had not been a question of hard labour

or penal servitude for a young man who had never done any harm to anyone, and on whose character there was not a stain. Fortunately the jury were not so prejudiced, and they evidently rated the Judge's remarks at their true value, for they promptly returned a verdict of "Not Guilty."

It is impossible, after perusing the verbatim report of the learned Judge's remarks, part of which we give on another page, not to be reminded of two classical passages in the works of Lewis Carroll, which in case any of our readers may not call them to mind, we append herewith:—

"If you did not sign it," said the King, "that only makes the matter worse. You must have meant some mischief or else you would have signed your name like an honest man."—"Alice in Wonderland."

"Nobody walks slower than you do," said the King. "I am sure I do my best," said the messenger. "If nobody walked faster than you do," said the King, "he would have been here first."—"Alice through the Looking Glass."

A Duty which the Automobile Association should assume.

IN referring to the proceedings of the Automobile Association, we learn with some regret that several well-meaning people are thinking, or at any rate arguing, that the tendency of the Association's campaign will be to give the reckless driver a new lease of life, in fact, to encourage the "road-hog" at the expense of the "hedge-hog." They allege that if the police-trap is to be universally out-generalled, out-manœuvred, and generally rendered ineffective by "masking" it with cyclist scouts, there will be nothing to keep the really reckless driver in subjection. A more telling indictment of police tactics could hardly be imagined than these assertions would provide if they were true, but we are glad to think, all the same, that they are not true, for we understand that the Association has made a practice up to the present of invariably discouraging reckless driving wherever they encounter it, and that they will be even more careful in future on this point than they have been in the past. They will be able to do so with the greatest ease. All that is necessary is that it should be generally known that motorists who are driving with obvious recklessness will not be "warned" by the Association's scouts, and that bad cases will be reported by them to the Automobile Club. The suppression of the reckless driver is of almost greater importance to and more devoutly desired by all good motorists even than by the general public. The future of the movement largely depends on his suppression, and as the Automobile Association has the future of the movement thoroughly at heart, it may be relied upon to do all it can to prevent abuse of the high roads.

Further Testimonials to the Motor 'Bus.

UNDOUBTEDLY the finest testimonial that the motor 'bus has received is provided by the two letters—one from the London Road Car Company, and the other from the Associated Omnibus Companies—which have recently appeared in the London Press, designed to reassure their shareholders, and to stop the panic which the directors must evidently regard as imminent, or they would hardly have taken so extraordinary a course as to publish a communication designed to convince their shareholders that everything is for the best, with the best of all possible omnibus and road car companies. Both the Road Car Company, the General Omnibus Company, Messrs. Tilling and Co., and the Associated

Omnibus Companies protest with much vigour that they are not neglecting the motor 'bus, and that on the contrary they will be having any number of them running in a short space of time. Alas! it was not always thus with them! We fear that their tendency was to ignore the motor 'bus until the motor 'bus could no longer be ignored. We have urged them often enough, and other papers have urged them, to adopt the motor 'bus while it was a newcomer; but this they persistently refused to do in act if not in word. Now, instead of leading they are following the lead of others, and meanwhile a golden (or copper) harvest is being reaped by the progressive and enterprising companies who have been first in the field.

Danger Ahead.

THE value of this harvest, however, seems likely to have a result that may be dangerous to the industry. Attempts are again being made to utilise the popular appreciation of the motor 'bus for company promoting purposes on the old bad lines, which has invariably spelt disaster for any industry to which they have been applied. None can be more anxious than we are to see motor omnibuses entirely supersede horse-drawn vehicles, not only on account of the enormous advantage and convenience of that great improvement in street traffic, but for economic and sanitary reasons as well. But we would *again* caution the public, as we have cautioned them in the past, to be very chary of investing in promotions which, on the face of them, are obviously designed to secure promoters' profits in the first place, without much care as to what happens to the companies so promoted afterwards. If such operations are carried out on at all a large scale, it will mean a repetition of the destruction of confidence in legitimate motor concerns generally, from which the industry has suffered in all departments for so many years, and from which it is only now just beginning to recover. Of operations of this kind, this Journal was one of the most vigorous opponents in the past, and much as we desire to see the general motorisation of London 'bus traffic at an early date, we would prefer to see it postponed for a considerable period rather than that the general welfare of the industry should be imperilled by reckless promotion of motor 'bus companies of the kind with which there appears some danger to believe we are at present threatened.

The extent to which the question is becoming one of considerable financial magnitude is being clearly recognised in the City, and an important article adopting the same general attitude to the situation as we have taken up has been published by the *Financial Times*. The appearance of such an article in an independent and financial authority of such standing is so great that we make no apology for reproducing a résumé of it on another page, the figures contained in which are highly instructive.

Isle of Man Motor Trials.—Lord Raglan, at Tuesday's meeting of the House of Keys, announced that the Automobile Club had forwarded him a cheque for £250 towards the up-keep of the Isle of Man roads, in token of the appreciation and consideration they had received in being allowed to run the Gordon-Bennett trials and the Tourist Trophy race in the Island in May and September last.

PARIS SALON 1905.

ON the 8th December, President Loubet opened the Eighth International Automobile Salon at the Grand Palais. The Show remains open until the 24th of the month.

There was at one time no small amount of discussion in English motoring circles as to the advisability of holding our own exhibition prior to that in Paris, but if any doubt remained on that point it should at least be cleared away now that the Paris Salon has shown the public what it has to offer. The importance of the English market to France has always been fully realised, and it was, of course, justly taken for granted that those French manufacturers who were directly interested in it, would see that their new models were quite ready for the Olympia Show. This, with but few exceptions, has proved to be the case, and the natural consequence

It is not surprising that these considerations have borne themselves in upon the majority, and the fact that the A.C.G.B.I. were unable to organise a combined minimum party of thirty in connection for even one special train is, therefore, a matter upon which further comment is needless, for it is obviously—when taken into consideration with the big parties which were made up in former years—a most convincing sign of the times. Those who may have crossed over from England to visit the Show in a non-professional capacity must have found but little to reward them if they were anxious to see new tendencies in design or radical novelties. From a spectacular point of view, of course, the Grand Palais in the Champ Élysées offers attractions which are in many ways superior to anything which

Mons. G. Rives. President Loubet. Mons. Trouillot.

THE PARIS SALON.—President Loubet leaves the Exhibition after paying a most exhaustive visit, during which he evinced personal interest in the new models of practically every exhibitor of note. The President—who arrived at 10 o'clock to open the Salon—was attended by a distinguished party. In the above photograph he is accompanied by M. Gustave Rives, President of the Organisation Committee (on the left), and M. Trouillot, Minister of Commerce (on the right).

is that the Paris Salon has, from the English point of view, lost almost its entire importance. No foreign car at the present day has any real interest to the English buyer until it is established in England, for the days are long since past when English motorists bought their cars direct in France, and now that the majority of the really first-class firms have agents or branches here, it can be assumed that the Olympia Exhibition offered the pick of the world's automobile productions. Of these exhibited productions, too, it may be said, in parenthesis, that the English-made vehicles rank second to none either in sound construction or high-class finish, and the time has now gone for ever when the English automobile engineer may seek any material benefits from a preliminary glance—such as has hitherto been afforded by the Paris Salon—at the latest creations of his Continental *confrères*.

England has to show, and its unique situation lends itself to an extensive scheme of decoration which the A.C. de France have carried out with their usual lavish disregard of cost.

At first sight it may not appear to be important, this gay illumination in the Avenue Nicholas II. and the other approaches to the Palace, but it gives just that air of being *en fête* which is required to attract the Parisian, and it popularises the automobile, in consequence, among the masses, who cannot afford to use them. It has, too, the effect of turning the Salon into a local attraction, which is not altogether desirable, for in the early evening the crowd is so dense that it is practically impossible to move about and, to judge by appearances, the majority do not mean business. This, however, is

evidently recognised by the Administration, for they close the doors at 7 o'clock each evening. For anyone who wishes to "do" the Show thoroughly, the Grand Palais is a fatiguing place, for it has innumerable galleries, some parallel to each other and others at right angles, so that it is impossible to take them all in a general walk round. As at last year's exhibition, too, quite a number of exhibits entirely unconnected with motoring have been allowed to take space, and the hapless visitor is assailed with offers of perfumery and toys when he is expecting to find the latest thing in magnetos and sparking-plugs. On the ground floor, there is the Cupole d'Autin, and the galleries adjoining it, which the visitor is apt to miss, as also Gallery "A," immediately to the right of the main entrance, where the Societe Paris Automobile this year show one of the 6-cylinder

congratulations to the Administration, for the two combined make a great improvement.

Last year, it will be remembered, the heavy vehicles and boats were removed to the Serres de la Ville, which is situated in the Cours la Reine, directly opposite to one of the entrances to the Grand Palais. It is the same this year also, and, in addition, the Aeronautical section—which previously was in the gallery, round the Cupole d'Autin—has been allowed to join them. At the present moment, the majority of the exhibits in the Serres de la Ville are hopelessly incomplete, and down in the *sous sol* men are at work in actually constructing the floors and seats of some of the boats which will eventually be on show. It is nothing short of amazing, however, how quickly an exhibition can be made complete, and what appears to be chaos in the evening has a habit of

THE PARIS SALON.—View looking down the Grand Nef just before the official opening. In the foreground painters are seen at work on various chassis, and this general finishing off proceeded throughout the day. Generally speaking, however, the exhibits were wonderfully complete. Although not conspicuous for their individual merit, the tout ensemble of the various "signs" has at once a magnificent and artistic effect.

Napiers, for which they have secured the French agency. Inside, the decorations and illuminations are, as usual, on a magnificent scale, but it is difficult to say if they are better than before, because they have always been so very elaborate. Under the glass dome there is the wonderful electric sun, which has, for some time now, formed the culminating feature in the general scheme of illumination. On one point, at least, there is a marked improvement, the aisles are now covered with matting instead of the horrible loose gravel which has characterised them in the past and it is thus for the first time possible to walk about the Exhibition in moderate comfort. At intervals, down the centre of the main aisle, are the same pillar-box-like warming stoves, but these, owing to the mildness of the weather, have not yet been called upon to taint the atmosphere beyond its usual closeness—and on this also we would offer our

appearing most orderly by the following morning. It may possibly be the same in the Serres de la Ville, although the heavy nature of some of the exhibits evidently militates against quick work.

English and American Exhibitors.

One of the most gratifying features of this year's show is the importance of the English exhibits, and it is a matter for considerable congratulation to find British cars taking their stand in this way in the capital of the French industry. With the notable exception of the Napier chassis, which are shown by San Giorgia (of Genova) as well as by the Societe Paris Automobile, all the English cars have good positions in the Grand Nef among the best Continental cars. These include those of the Wolseley and Siddeley Company, Argyll Company, Humber, Limited, and the Star Engineering Company,

THE PARIS SALON.—A Gallia Electric Vehicle constructed for a perfumery firm in the Galleries St. Martin. Designed in the Louis XV. style, with artistically painted panels, this little voiturette forms a most striking exhibit, and it gives, besides, some idea as to how far a definite style is applicable to automobile carriage work.

while the "British" light car is exhibited under the Cupole d'Antin. There would have been, in addition, an exhibit by C. S. Rolls and Co., had they not been so unfortunate as to secure an "impossible" position in the ballot, causing them in consequence not to exhibit at all. It was hardly to be expected that any of these firms would have anything new so soon after the Olympia Show, and generally speaking this is the case, although the Wolseley and Siddeley Company are arranging to exhibit one of their new 25-h.p. chassis, which was not ready in time for Olympia; this had not, up to the time of writing, arrived at the stand, however, owing to some delay in transit. Several cars and chassis were on view, however, including that little 6-h.p. model, with the vertical engine and propeller-shaft driven live-axle, which was one of the features of this stall at the last Salon, but was not exhibited at Olympia. No chassis is on view at the Argyll Company's stall, but they are showing two complete cars instead. All the latest improvements on these vehicles have been very thoroughly dealt with in our recent special article, so it will not be necessary to refer in detail to them here. In Paris, too, these cars are likely to become well known for they are now in the hands of those who are bringing their many excellent features before the notice of Continental motorists. Similarly situated with regard to the French market is the Humber Company, who exhibited, in addition to complete cars, one of the new 16-20-h.p. chassis. At Olympia, it will be remembered, they did not show a chassis on account of the small space available, although they were well represented in this

respect at the Stanley Show. As, however, we have in course of preparation a special article on the latest Humber chassis, it will not be necessary to refer further to it here except to say that it is of simple and up-to-date construction, and has been well designed to meet the requirements of those who want a powerful and reliable car of extremely moderate price. In this respect it can hardly fail to appeal to a very large section of the French public also, for at the present Salon the equivalent to what might be termed the English Tourist Trophy type of car is not very conspicuous.

In addition to the English cars, there are the two well-known American cars, the "Oldsmobile" and the

THE PARIS SALON.—One of the Argyll single landaulette cars exhibited at the Salon. The car is of 16-20-h.p., and has from the opening day been attracting a considerable amount of attention from the visitors to the Exhibition.

THE PARIS SALON.—Side view of one of the new Richard-Brasier chassis. This is one of the very few well-known firms who did not exhibit their new models at Olympia. Engine and gear-box are carried on a long tubular underframe and the side members of the mainframe are perfectly straight when viewed from above. They are also pressed complete with flanges to which the chain-sprocket brackets can be fixed, one of these being visible above. Three-quarter elliptic springs support the frame at the rear. Combined with the main clutch, which is of the leather cone type, there is a positive clutch formed by a set of projecting, cylindrical pins which engage in corresponding oval slots and so prevent the clutch from slipping. This positive clutch is held in engagement by quite a weak spring and it is practically impossible to touch the pedal without disengaging it. A very neat adjustment is provided for the clutch-pedal itself by which its position can be suited to the requirements of the driver.

Cadillac, the former represented by its Paris agents, and the latter being shown from headquarters in the States. The Columbia car is in evidence, as is also another American exhibit, under the name of the American Locomotive Company, who are constructing Berliet cars under licence.

Continental-Touring Cars.

At a French Exhibition it is, of course, from the French cars that most is expected, and certainly those of the well-known manufacturers are well worthy of inspection at this year's Paris Salon. Practically without exception, however, the exhibits have all been on view at Olympia. Messrs. De Dietrich come, of course, under this category, and although their splendid little new model—the 12-15-h.p. chassis—is now shown in France for the first time, Messrs. Jarrott and Letts have already made it familiar in England, and a fully illustrated description of it has appeared in our columns. The new 40-h.p. chassis is also on view again, and creates as much sensation as did its prototype of the previous year. Messrs. Panhard have an excellent exhibit, too, although they do not show any of the 6-cylinder models which Messrs. J. E. Hutton introduced at Olympia this year. Neither is there anything fresh on the Mercedes and De Dion stands beyond what has already been exhibited in England. Messrs. Richard Brasier were one of the very few well-known firms who failed to put in an appearance at Olympia, and consequently their new chassis are now features of especial interest to English motorists. With the exception of the smallest model, 15-h.p., all are chain-driven. Constructed of pressed steel, the sides of the main frame are quite straight when viewed

from above, and they are pressed with flanges to which the chain-sprocket-brackets can be directly fixed. Three-quarter elliptic springs are employed at the rear, and these lie outside the frame. Both engine and gear are supported by a long tubular underframe, and the engine itself is of quite a new design, which is very conspicuous for its neat appearance. All the valves are arranged on the same side, but the low-tension igniters are on the opposite side, and are operated in an unusual manner by an exposed horizontal shaft alongside them. The main clutch is of the leather-faced cone type, but it has a supplementary positive clutch which enters after the cone-clutch is engaged. This supplementary clutch is

THE PARIS SALON.—View of the new Richard-Brasier Engine, showing the horizontal shaft, A, which operates the igniters by means of small face cams. The shaft, A, is driven by bevel gearing from a vertical shaft, A', and provision is made for automatically retarding the ignition when starting, although normally the timing is fixed.

THE PARIS SALON.—View of the supplementary brake, A, on the new Mors Chassis. The brake-drum is fixed to the differential countershaft and independently operated by foot through the rod, A¹. It is anchored at A² to the cross-bar, A³, which is hinged to the frame at one end only. Passing around the cross-bar, A³, is a link, B¹, which connects the side brake operating-rod to its cross-bar, B, and it is against this link that the cross-bar, A³, abuts when the foot brake is applied to the drum, A. The idea is that the momentum of the vehicle can in this way be used for helping the application of the rear-brakes because the torsion of the drum, A, on its band is all transmitted, indirectly, to them.

formed by a series of pins which engage in slots in the fly-wheel boss.

Many new features were also evident on the Peugeot models, notably the Mercedes type of change-speed-gear and the internal expanding-brakes, of which there are four—two on the hubs, one on the countershaft, and one immediately behind the gear-box, which is separate from the differential casing. A ratchet-sprag is fitted to the brake-drum on the differential countershaft, but this is not inter-connected with the reverse. This year, a new model having a 50-h.p. engine has been added to the list of standard cars. The 1906 Westinghouse model is in the main similar in design to that shown by them—as a new car-building firm—at the 1904-5 Salon, when they were awarded a gold medal, but several important improvements have now been introduced. It has a 4-cylinder engine of 30-h.p. that runs at a normal speed of 1,000 revs. per. min., a disc-clutch, ball-bearings throughout the transmission, two independent foot-brakes as well as the hand-brake, and side chains to drive the road-wheels. Of other well-known French cars, those such as the Clement and the Gladiator were shown in London, as was the new 14-22-h.p. Belgian Germain, while the new Dutch Spyker chassis with its dustless frame has not, up to the time of writing, put in an appearance, and its place on the ingenious revolving-stage erected for its benefit is at present occupied by a less interesting substitute.

Italian cars—of which the best known in this country is the Fiat—have developed so rapidly of late that they have this year assumed a proportion in numbers such as enables them to be referred to collectively under their nationality. It happens that practically all the Italian cars are being exhibited at the Salon, there being the Fiat, Bianchi, Itala, Florentia, Isotta Fraschini, Rapid, and Züst, and, considered as a whole, it must be admitted that they form a series of sound engineering jobs which are worthy, individually and collectively, of

that nation's engineering reputation, and of that of the firms who made them. Although most of these firms started building cars somewhat late in the day, yet they have been content to bring their established engineering skill to bear in the careful, but not too literal, copying of the best practice of the day. The result has been a series of valuable contributions to the list of first-class cars. Of the names mentioned, the Fiat has, of course, long since become a household word in this country among those who speak of first-class cars, the Itala was introduced last year by the Fabri Automobile Company, and the Bianchi is now in the hands of Messrs. Straker and MacConnell, who exhibited it at Olympia. Of

the others, two—the Rapid and the Züst—have not been shown before, but the former will in all probability be

THE PARIS SALON.—The Mors Automatic Starting Device. When starting the engine the driver has only to draw forward the handle, A², give a stroke or two of the pump, A, and switch on the battery ignition—the engine should then start, for the first operation has opened up communication between the cylinders and the pump and the second action on the part of the driver has charged them with carburetted air. On the dashboard is a small tank, A¹, called the "dynamogene," which acts as the carburettor. In this illustration, part of the new Mors clutch is visible. Cast on the fly-wheel is a projecting rib, B, which forms a drum, and this is gripped on its external face by an ordinary metallic brake-band. One of the operating levers, B¹—which revolve—is also visible; they are worked by a simple sliding cone on the main shaft.

THE PARIS SALON.—Side view of the new Serpollet Chassis, which is now constructed with a single chain drive to a live-rear-axle. Most important of the new features, however, is the engine, which is now double-acting. In front, under the bonnet is the boiler, which together with the "system" generally, remains the same as it was last year.

brought to this country by the Fabri Automobile Company at an early date. There is very little difference between the various cars, but the Itala, Rapid, and Florentia are of the live axle type, whereas the others are chain driven.

New Cars at the Salon.

This year's Salon is most disappointing in its production of new cars. There are new cars, it is true, but hardly any are conspicuous for originality, and comparatively few for their good workmanship, other than those which have been already referred to as such under other headings. Most of them have engines of the ordinary 4-cylinder type, with the cylinders cast in pairs and the valves arranged on opposite sides. Some—such as the Underberg, Bail, and Sage—have wood frames stiffened with flitch plates, while the others—like the Argus, Buire, Rebour, Saurer, Desgouttes, and Delaugere and Clayette—have the more orthodox pressed steel variety.

On the De Salvert chassis, the tubular casings enclosing the halves of the live-axle are set obliquely to the differential casing in order to splay the wheels. In this respect it is somewhat like the Aries which made a feature of the same principle last year, but the essential difference between them lies in the fact that the Aries employs a stationary axle for supporting the wheels and the differential casing, whereas the De Salvert is constructed in a similar manner to ordinary shaft-driven live-axle cars. Some form of petrol-electric

vehicle is generally fated to be numbered among the new cars at the Salon, and this year there is the L'Auto Mixte. There is, however, nothing very special about it as a system, for it merely employs a shunt-wound dynamo which does duty for a change-speed-gear. Beneath the driver's seat is a battery of accumulators which is charged by the dynamo, which can of course be used as a motor when required either for increasing the speed of the car or for helping it up-hill. It is, also, the only means of reversing. A magnetic main clutch is introduced, and there is an electro-magnetic control on the throttle-valve.

Steam Cars.

Three new cars have been added to the not very lengthy list of steam vehicles already on the market, they are the Weyber and Richmond, Fidélia, and L'Auto Vapeur. None of them appears to embody anything especially

THE PARIS SALON.—View of the new Serpollet Engine, showing the duplicate set of valves for the double-acting cylinders, which are operated from the same cam-shaft. One row of valves controls the admission and exhaust to the one side of the pistons and the other set to the other side, so that an impulse is obtained every stroke. By the side of the engine are two long tubes, A, through which the steam is passed before taking it to the honeycomb radiator. Inside these tubes are others through which the feed-water to the boiler is passed, so that this in turn becomes heated in advance.

THE PARIS SALON.—View of the steam engine on the new Weyber and Richemond Car. It has four horizontal cylinders arranged in pairs on either side of a spur pinion fixed to the centre of the crank-shaft. Combined with the crank-chamber is the casing around the differential which is driven by the spur-wheel on the engine crank-shaft. The rear wheels are driven by side chains. In front, under the bonnet, is a semi-flash boiler of the Serpollet type.

original or ingenious, for while the first two employ a Serpollet-type boiler with its own engine, the last uses a 4-cylinder engine of the Serpollet old type with its own boiler. In the Weyber and Richemond car there is a 4-cylinder horizontal engine arranged transversely in the frame, and it drives a differential-countershaft direct by spur-gearing. The rear road-wheels are thus chain driven. In front, under the bonnet, is the boiler, and at one side of the frame is the steam donkey-pump for feeding the water and fuel; from the limited information at present available we do not, however, gather that there is any automatic control on either vehicle, although both can be regulated by the driver, from the dash. The Serpollet-type boiler on the Fidélia car is placed at the rear of the chassis and there is a 4-cylinder vertical engine in front under the bonnet. In appearance this engine is very similar to a small petrol engine, its cylinders are separate and the valves are arranged in a similar manner on opposite sides. It is, in fact, only the slender appearance of the cylinders which draws attention to the engine at first sight. A cardan-shaft drives the live-rear-axle, but a feature of the system is the introduction of a leather cone-clutch in order to allow the engine to run free when required. All the pumps are driven by eccentrics from the engine crank-shaft, and the main-clutch allows the engine to be used, so to speak, as a donkey pump, for it requires very little steam to drive the engine when disengaged from the propeller-shaft, and it only requires a few strokes of the hand-pump to start it from cold. With the exception of a cut-off valve on the feed water (which operates at about 900 lbs. per square inch) the system is not automatic, the driver regulating the fuel and water by hand and momentarily making use of the clutch when the steam supply runs low. In the Auto Vapeur car, the boiler is a simple multi-tubular arrangement provided with a superheater beneath it. The 4-cylinder engine is

arranged horizontally in the centre of the frame, with its cylinders opposed in pairs; it drives the live-rear-axle through a cardan-shaft.

It is around the latest Serpollet car, however, that most interest centres this year, for the changes that have been made to it are even more radical than they were last year. The cardan-driven live-axle has been abandoned for one which is driven by a single chain, and the horizontal engine—which is placed longitudinally in the frame—now has two double-acting cylinders instead of four single-acting ones. In appearance, the engine is as compact as before, for the valves are very neatly arranged in two rows, one below the other; they are of the same mushroom type as hitherto, and are operated by one cam-shaft.

No alteration has taken place in the system as a whole, so far as it affects the control of the car; its leading features were described, it will be remembered, in connection with the last Salon, when they were originally introduced. There is one important addition, however, in the shape of a feed-water-heater, consisting of a compact multi-tubular device through which the exhaust steam and the feed-water pass simultaneously; it has, too, a further advantage, inasmuch as it allows the honeycomb condenser to be of a smaller size than would otherwise be necessary. The boiler is placed in front of the dash, under a bonnet which is similar to those used on petrol cars, but is distinctive by reason of a perforated portion which ventilates it.

Another well-known steam car is the Chaboche, but this, as exhibited at the Salon, remains practically the same as last year, except in a few minor details.

Among such a gathering of steam vehicles we were sorry not to see the White, for without so well known and popular a vehicle the section to which it belongs must necessarily be incomplete.

Last week we published a photograph of an interesting 3-seated Napier landaulette, in which an entirely new type of body was shown which isolated the driver and, at the same time allowed a comfortable third seat to be arranged inside the carriage. Messrs. Mulliner, whose design this is, must be gratified to learn that it so took the fancy of M. Charron, of the Paris firm of Charron, Girardot, and Voigt, that he made an offer for the body from Messrs. S. F. Edge, Ltd., for the express purpose of showing it in the Paris Salon, now in full swing, on one of the C.G.V. carriages, a point in favour of British workmanship, which Mr. Edge so appreciated as to be induced, under the circumstances, to accede to M. Charron's wishes.

(To be continued.)

HIGH-TENSION MAGNETO IGNITION.—PART XIX.

THE LACOSTE SYSTEM.

Now that high-tension magnetos are no longer a novelty, in themselves, the chief interest in any new model centres mostly in those features which the manufacturer has considered worthy of special development. The Lacoste High-Tension Magneto has been constructed more especially with a view to strength—

dentally, too, the low-tension mechanism is mounted at one end of that half-speed shaft which drives the high-tension distributor, so the armature spindle, which usually carries this portion, is less encumbered, and allows more room for the "timing" gear.

Electrically, the Lacoste system is not peculiar, neither has it been specially designed for alternate use with battery ignition, although it is, nevertheless, quite possible for it to be so used, and the Lacoste Company have made a high-tension switch which is designed for the purpose. On a new model, moreover, which is now being made at the works, we noticed that special modifications are being made in this direction.

The Magnets.

The magnets, G, are similar in most respects to those commonly employed on magnetos, being of the compound horse-shoe type and made up of six separate elements secured together by common cast-iron pole-pieces, G², to which they are attached by screws. The complete construction is mounted on an aluminium base-plate, G¹, so that it may be easily attached in place on the car. Instead of being perfectly parallel, the pole-pieces are tapered at each end in such a way that the air gap between them and the armature is less at the centre than at the ends. This is an important feature in the design of the machine, and it is done in order to direct all the magnetism towards the centre part of the armature core *before*, instead of *after*, it leaves the magnets.

The Armature.

The armature is rather larger than usual, because an additional amount of insulation has been provided, in order to reduce the chances of electrical breakdown under even abnormal conditions of use. As usual, the centre part of the core, A, is laminated, but instead of forming the armature-cheeks, or side plates, A², of cast-iron, they are, in this instance, made of brass. Each pair of cheeks is cast in one piece with a flange joining two of its ends, and this flange, which is a

FIG. 1.—The Lacoste High-Tension Magneto. View of the complete apparatus showing the manner in which everything is enclosed under aluminium covers.

electrically as well as mechanically—and protection from damp and dirt. Thus all exposed parts are of aluminium—casings being provided where the object itself cannot be constructed of this metal—and, for the purpose of rendering the electrical equipment less liable to break down, all the high-tension contacts are embedded in solid insulating material, so that only the necessary plug connections are in any way exposed.

With the same idea of strength, the armature is made larger than usual in order to allow ample room for more insulation, and there is another interesting feature in its construction, from a mechanical point of view, which will be explained presently.

Being of the real high-tension type, both high and low-tension coils are wound on the armature itself, but in order to render the circuits quite distinct, the high and low-tension mechanisms are situated at opposite ends of the machine. Inci-

FIG. 2.—The Lacoste High-Tension Magneto. View of the Magneto after removing the magnets, which are shown separately on the left. The duplicate Brushes, C¹, collect the Low-Tension current from the Slip Ring, C¹.

"shuttle-shaped" plate, is riveted up against the sides of the core, A, as is clearly indicated in Fig. 3.

This form of construction is, of course, adopted in order to make the armature as rigid as possible, but the use of brass as a material for the cheeks, A², is, nevertheless, a curious departure from orthodox practice. The elimination of solid masses of iron from the core—which cause Foucault currents and interfere with quick reversals of magnetism—is the principal advantage obtained, but this would be accompanied by an increased tendency for the lines of force at each end of the pole-pieces to stray unguided through the non-magnetic brass,

two. The low-tension current is collected from the slip-ring, C¹, by two brushes, C², mounted in brush-holders, C³. These brush-holders form plug-fittings in the aluminium plate previously mentioned, which rests across the top of the pole-pieces, G², (Fig. 2). Although there are two brushes, C², it will be noticed that both rest on the same slip-ring, C¹, and are, besides, electrically connected together above, so as to be virtually one brush. These brushes are made from different materials, one of brass and the other of carbon, this arrangement being found necessary on account of the high peripheral velocity of the ring, C¹, and the

FIG. 3.—The Lacoste High-Tension Magneto. Views of the component parts. On the extreme left is the box enclosing the Timing Gear; the Spur Wheels for driving the Spindle, D², are mounted on the Bearing Plate, M, which carries the Low-Tension gear—but, being enclosed, are not visible. Above the Armature, which is in the centre, is the Condenser, F, and all the High-Tension gear is mounted on the far side of the Bearing Plate, M¹.

were not the pole-pieces themselves tapered in the manner and for the purpose already explained.

Brass end-plates, B², are fixed to the core, at both ends, in the usual way, and these carry the halves of the armature spindle, B and B¹. Both primary and secondary windings are wound over the centre part of the core and one end of each is earthed to it. The live end of the primary winding is connected to an insulated slip-ring, C¹, mounted on the periphery of one of the end-plates, B², while the live end of the secondary winding is carried through the armature-spindle, B¹, where it terminates in a contact-knob, D¹.

The Low-Tension Gear.

Unlike most magnetos of the real high-tension type, the low-tension mechanism in this case is not mounted about the armature-spindle, but about the distributor spindle instead. Being driven at half the usual speed, it is necessary for the contact-breaker cam, B⁴, to be provided with four projections instead of

advisability of lubricating the brass brush—such lubrication being afforded in this case by the soft carbon.

These brushes are directly connected by means of a flexible wire to the terminal, C¹², which in turn is connected, through a switch, to the terminal, C¹³ (Fig. 5). This latter terminal forms part of the small bracket which carries the adjustment-screw, C⁷, of the contact-breaker, C². When the contacts are closed, therefore, the armature primary winding is short circuited on itself.

All the low-tension gear proper is mounted on a circular brass plate which is covered by a neat aluminium case. A detailed view of this mechanism is given in Fig. 6, which shows all its important parts and renders their action obvious. The cam, B⁴, is mounted on the distributor-spindle, D², but the gear-wheels driving this member will be referred to in connection with the high-tension gear.

(To be continued.)



EVIDENTLY the tram and rail service from Ealing leaves something to be desired, for an enterprising firm are running a service of motor 'buses through the principal shopping thoroughfares of Ealing to Broadway Station. A penny fare is to be charged for the whole

distance of nearly two miles. Similar enterprise is being displayed at Chiswick, where, it is reported, a private motor omnibus company has been formed by the householders of Grove Park to run between that spot and Turnham Green.

THE NEW ARROL-JOHNSTON PETROL CARS.—PART V.

expanding brake. It will be noticed that they occupy a remarkably small amount of room in all, and yet each is of sound construction in itself.

Beginning with the universal joint—the function of which is to connect the propeller-shaft, H^9 , with the short bevel-pinion shaft, M —it will be seen that the forked end, L , is somewhat similar to that (H^7), at the forward end of the same propeller-shaft, but that its radial pins are provided with square guide-blocks, L^1 . The radial pins give the needed hinge-motion in one plane. In the other plane, however, the required freedom of action is obtained in a very different manner, for, inside the forging, L , is a spherical socket—formed by two hardened steel sleeves—that fits around the central “ball,” L^2 . The ball itself is mounted on the main casting, M^1 , which is securely fixed to the shaft, M .

For giving the necessary telescopic motion, the guide-blocks, L^1 , are carried between projecting arms—these arms being a part of a special fitting, L^3 —and the “ball,” L^2 , is also rendered free to slide upon its sleeve, M^1 . The special fitting, L^3 , is mounted, as seen, between the external casing, M^2 , and the casting, M^1 , those two parts being bolted together in such a way as to leave it free to revolve independently; thus it is that the propeller-shaft really drives the fitting, L^3 , but has no direct mechanical connection with the shaft, M . Between the fitting, L^3 , and the casing,

Fig. 21.—Three views of the Arrol-Johnston Live-rear-axle, fitted with the “Spring-drive,” Universal-Joint and Expanding Brakes, which are amongst the special features of these new cars.

The Live-Axle and “Spring-Drive.”

FOR the sake of convenience, these two important parts of the new Arrol-Johnston cars will be considered together, and they are, indeed, illustrated conjointly in our photographs and drawings. Fig. 21 includes three views of the axle—one being taken from the end, one from above, and the other obliquely from in front. In Fig. 22, the various parts constituting the axle and the “spring-drive” are shown grouped together on a table, and the propeller-shaft, H^9 , is also included in this group. The line drawings in Fig. 23 show the precise construction and arrangement of every part, the larger section taking the axle with the spring-drive in place upon it, and the other drawings giving additional sections of the spring-drive.

Most ingeniously arranged, in conjunction with the spring-drive, are no less than three other functional devices, for not only is there the universal-joint for the propeller-shaft, but provision is made for the telescopic motion of that shaft, and there is, in addition, the foot-operated

Fig. 22.—View showing the various parts of the Arrol-Johnston Live-rear-axle, Spring-drive, Universal-jointed Propeller-shaft, and Internal Expanding Brakes.

M², however, the four springs, M⁴, are introduced, these springs pressing up against the external projections of the former, and against the internally projecting lugs, M³, that form a part of the latter. Two of these springs transmit the power to the shaft, M, when the car is being driven forwards, and the other two come into operation when "reversing."

The whole mechanism is rendered oil-tight, in much the same way as the universal joint at the forward end of the propeller-shaft, by the aluminium cover, L², and a

points to notice are that the upper half of the central casing can be taken off without much trouble, and that the road-wheels run on the roller-bearings, N⁴, *outside* the axle-tubes. Other strong features are that the short shaft, M, is supported by substantial bearings on both sides of its bevel-pinion, M², and that it is quite impossible for the road-wheels to come off even though the driving-shafts, N, should break. This latter point is ensured by the ring, N⁵, behind the wheel, the ring fitting over a flange, as seen in Fig. 23; between the ring and the flange is a leather washer to retain the oil

Fig. 23.—Sectional drawings of the Arrol-Johnston Live-rear-axle, and of the Combined Universal Joint, Spring Drive and Foot-operated Brake.

leather stocking (not shown in our illustrations). Also bolted to the casting, M¹, in such a manner that it can readily be removed, is the brake-drum, M⁶, inside which are the expanding brake-shoes, P, with their operating mechanism. The brake-shoes are mounted upon the castings forming the axle-casting, and the brake is of precisely similar construction to those at each end of the axle.

Coming now to the axle itself, the most important

(To be concluded.)



ANOTHER example has come to our notice of the extent to which the underhand and irritating tactics adopted by the police are recoiling on the institutions with which they are connected, is provided by some correspondence which has recently taken place between Sir Archibald Macdonald, Bart., J.P., and Mr. George Cave. Mr. George Cave wrote to Sir Archibald asking

Adjustable ball-thrust bearings are arranged on each side of the differential, the outer shell, N¹, of which is made in two parts so as to hold the planet-spider, N², between them. Long plain bearings support the shell, N¹, inside the axle-tubes, N³, and similar bearings carry the live-shafts, N, inside the shell-casings. In Figs. 21 and 22, the torque-rod, N⁶, is visible, and it will, of course, be understood that the side radius-rods are attached direct to the spring-brackets.

for a subscription to the Surrey Police Sanatorium, to which Sir Archibald replied that it would have given him great pleasure to send a cheque for £100 for that institution, but regretted that he was quite unable to entertain the request owing to the constant and systematic persecution of motorists by the police within the districts which would chiefly be benefited thereby.

THE 1906 WINTON CARS.

(Continued from page 1532.)

The Change-Speed-Gear.

ALL other features of Winton cars, with the exception, perhaps, of the pneumatic control, must be considered as minor characteristics to the Winton gear. In principle,

run free until brought into use by being gripped between two clutches (disc and cone), which revolve on either side of it. Just how these clutches are arranged and operated is most clearly indicated in Fig. 11, although Fig. 12 gives a good general view of the interior of the gear-box after removing the top half. Connected

to the engine is the driving-shaft, L, which runs through the box to the other end. On this shaft, either directly or indirectly according to the design employed, is the short tubular shaft, N, which carries the shaft, L, where it passes through the box to its far end.

On the other side, is the lay-shaft, M, which is employed for low-speed and reverse, but runs idly while the top-gear is in use. Keyed to the driving-shaft, L, are two steel pinions, L¹ and L². Of these, the pinion, L², meshes directly with a wheel, M¹, on the lay shaft to give the low-speed, while the other drives an intermediate pinion (not shown), and thus, indirectly, the wheel, M¹—which is also free on the lay-shaft—to give the reverse. These wheels, M¹ and M⁴, are each placed between friction clutches, M², M³, and M⁵, M⁶, respectively, but normally the clutches do not touch the wheels, their clearance being ensured by the action of small helical springs interposed between them. In order to bring these clutches into engagement, pivoted dogs, P¹, P², are operated by a sliding collar, P³, from one of the side levers. On the collar, P³, is a double conical wedge which lifts the long ends of the dogs and so forces the short ends against the outer surface of the disc-clutch,

Fig. 10.—The 25-h.p. Winton Car.—View showing the Gear-box in place on the Chassis, also the mechanical force pump lubricator on the dash. Also visible are the Brake-pedal, S, and the Accelerator-pedal which operates on the Air-valve, B¹.

our readers are already familiar with it, but as the details of its construction have necessarily been somewhat modified on the live-axle models, we again give a description of its action and parts. There are only two speeds and a reverse, and each gear is introduced simply by pushing gently forwards or pulling gently backwards one of two long levers arranged at the driver's right hand. There is no main clutch, and consequently no clutch pedal to be depressed as a preliminary to gear changing; but each gear has an individual clutch of its own, which is engaged or disengaged by the operation of the side levers. Each pair of wheels in the gear-box is always in mesh, but only the steel pinion of each train is permanently keyed to its shaft, the wheel driven by it—which is of bronze—being allowed to

which in turn moves along the shaft, until the gear-wheel, which it carries with it, is forced against the cone-clutch on the other side. As the cone-clutch cannot move sideways, the wheel is, consequently, gripped fast,

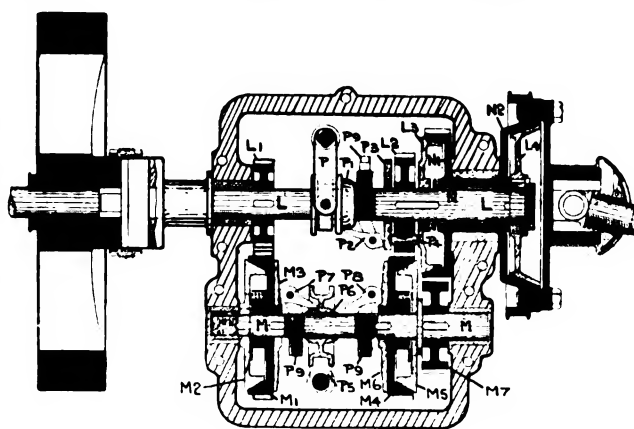


Fig. 11.—The 25-h.p. Winton Car. Sectional drawing Gear-box and Live-rear-axle, showing how the individual are arranged for operating each speed, and illustrating end-thrust is eliminated once any clutch is engaged

Fig. 12.—The 25-h.p. Winton Car. View of the interior of the Gear-box showing the clutch operating mechanism for introducing each speed. In this view (on the right) one of the small springs which keeps the jaw-coupling behind the fly-wheel from chattering is also clearly visible.

and is then capable of transmitting power to the lay-shaft, because both the disc and the cone-clutches are mounted on keys. From the lay-shaft to the driven-shaft, N, the power is transmitted through the wheels, M' and N', which are always fixed to their respective shafts. For the high speed, the lay-shaft is not employed at all, a direct-through-drive being available by coupling the shaft, N, to the shaft, L, through the cone-clutches, L³, L⁴, and N¹ and N². In just the same way as the low-speed and reverse are introduced, so is the high-speed engaged, although some slight modifications have been made for constructional convenience. Thus the dogs, P², do not press directly on to the back of the clutch, L³, but on to a plate, P³, which in turn transmits the pressure through loose pins, P⁴, carried by the wheel, L². This method has been adopted to save space in the gear-box, and a glance at Fig. 11 will show how much larger the box would have to be, were the sleeve, P¹, placed on the other side of the wheel, L², merely in order that the dogs might operate more directly upon the clutch.

One of the most ingenious features of the Winton gear is the manner in which end thrusts have been avoided, for it is only just at the moment when the gear is being engaged that there is any pressure along the shafts, and this is entirely eliminated when the gear is fully "in," owing to the fact that the cone-clutch is in each case forced against a collar on its own shaft, and that the dogs cannot, if properly adjusted, react on the sliding sleeve. It is in order to eliminate end thrust, too, that the supplementary cone, L⁴, is employed for the high speed, but obviously this could not very well have been placed inside the box without adding complications. Apart from the adjustment in the gear-operating-rods

themselves, there is a very simple adjustment, inside the gear-box, for resetting the dogs. They are for this purpose mounted on a threaded sleeve which is locked to the gear-shaft by set screws, P⁹, and it is, therefore, a simple matter to release these screws and move the dogs closer up to their respective clutches whenever that may be necessary. In order to avoid damaging the thread, the set screws tighten up on to soft brass plugs interposed between them and the shaft.

There is no intermediate shaft between the main gear-shaft, L, and the engine on account of their proximity, which enables them to be directly coupled. In order to allow a slight self-alignment to take place between them, however, a simple double-jaw coupling is introduced, and it will be noticed, in Figs. 11 and 12, that the loose intermediate piece between the jaws is prevented from chattering through being secured by two springs.

The Brakes.

Band-brakes are employed throughout, on the Winton cars, and, contrary to usual practice, it is the foot-pedal which operates those on the hubs of the rear-wheels; that immediately behind the gear-box is operated by pushing forward the "high-speed" gear-lever. Bronze brake-bands are used, and it is their springiness alone which allows them to grip the drums. For operating the rear-brakes, the foot-pedal is connected to the centre of a transverse bar passing across behind the back-axle. This bar operates the toggle-levers which draw in the brake-bands, and it is owing to the springiness of so long a rod that these brakes are compensated.

Table of Reference Letters for the 25-h.p. Winton Car.

A	Inlet-valve chambers.	L ²	Low-speed pinion on L.
A ¹	Cylinders above A.	L ³ , L ⁴	High-speed clutches on L.
A ²	Pistons on A ¹ .	M	Lay-shaft.
A ³	Caps on A ¹ .	M ¹	Reverse wheel on M.
B	Air-pump for valves.	M ² , M ³	Reverse clutches on M.
B ¹	Feed pipe to B ² .	M ⁴	Low-speed wheel on M.
B ²	Receiver chamber.	M ⁵ , M ⁶	Low-speed clutches on M.
B ³	Relief pipe from B ² .	M ⁷	Lay-shaft pinion.
B ⁴	Foot-valve on end of B ² .	N	Driven sleeve.
C	Carburettor.	N ¹	Spur-wheel on N.
C ¹	Induction-pipe.	N ²	Cone on N.
C ²	Auxiliary air-valve.	P	High-speed operating lever.
C ³	Petrol tank.	P ¹	High-speed wedge.
C ⁴	Reservoir on dash.	P ²	High-speed dogs.
D	Pump for fuel and oil feeds.	P ³	Plate operated by P ² .
E	Commutator.	P ⁴	Pins operated by P ³ .
E ¹	Gear-wheels driving E.	P ⁵	Low-speed and reverse operating lever.
F	Friction-clutch on gear-driven fan.	P ⁶	Low-speed and reverse wedge.
G	Circulating pump spindle.	P ⁷	Reverse-speed dogs.
H	Removable half of crank-chamber.	P ⁸	Low-speed dogs.
K	Lubricating oil-tank.	P ⁹	Set-screws for adjusting dogs.
K ¹	Feed to lubricator.	Q	Torque and radius rod.
L	Driving-shaft on gear-box.	R	Stay-rod.
L ¹	Reverse pinion on L.	S	Brake-pedal.
		S ¹	Compensating-rod.

Remarkable Claim for Road Damage.—A claim has been made by the local authority near Bristol against the Western Road Carrying Company for "extraordinary traffic damage" to the roads, alleged to have been caused by the company's motors. We are not quite certain whether this is the first case of the kind which has been brought, but we are under the impression that it is. In any case, the subject is one of very great importance to all users and manufacturers of

heavy commercial vehicles. On the result of the action no doubt will depend whether or not a general attempt will be made to enforce such claims against motor lorry owners. After carefully considering the subject, the Society of Motor Manufacturers and Traders have agreed to make a grant of £50 to assist the Western Road Carrying Company in its defence, one of the many instances of the effective manner in which the Society is looking after the interests of the industry.

A FINANCIAL VIEW OF MOTOR 'BUS PROSPECTS.

WE have consistently and persistently deprecated what we cannot help regarding as the very dangerous attempts being made in certain quarters in the Press to establish the motor 'bus boom on the regular company promoting lines which have done so much harm to other branches of the industry in the past. We have pointed out more than once that motor 'bus companies, though if conducted on business-like lines and on a proper basis, they are likely to prove satisfactorily remunerative, will not probably be the Tom Tiddler's ground which attempts are now being made to induce the investing public to believe they are. It is therefore with considerable satisfaction that we find so independent an authority on financial matters as the *Financial Times* devoting a carefully considered and exhaustive article to the question, of which we reproduce some extracts below.

enough, is shown by the relatively small amount of money which the old horse companies have raised in this connection. Below we record the capital provided :—

CAPITAL PROVIDED BY THE OLD COMPANIES.

Company.	Amount.
	£
Associated Omnibus ...	50,000
London General Omnibus ...	40,000*
London Road Car ...	60,000†
Star Omnibus ...	75,000
Thomas Tilling ...	60,000
	285,000

* Set aside from revenue. † £20,000 only called up.

As regards the profit-earning capacities of motor 'bus undertakings, the *Financial Times*, after observing that most of the prospectuses of the new companies give

Prospectus Estimates.

Omnibus Company.	No. of 'Buses.	Profit per Mile per 'Bus.	Total Profit per Year.	Average Yearly Profit per 'Bus.	Div. on Ord.	Surplus for Administration, Depreciation, Reserve, &c.	Miles Run per Day.	Days Worked per Year.	'Buses held in Reserve.*	Allowance for Depreciation.
		d.	£	£	p.c.	£			p.c.	p.c.
London and District	200	2	45,000	225	10	20,000	90	360	?	20
London Motor ...	240	2a	79,600a	331	10	57,600	109	full year	25	20 (?)
London Power ...	80b	3½c	44,600	557	10	24,600	75	full year	20	12½
Motor 'Bus ...	120	2a	39,800a	331	10d	24,800	109	full year	20	20 (?)

a. Allowing for depreciation.

b. 40 double and 40 single-deck omnibuses.

c. For single-deck omnibuses.

d. On £150,000 of capital.

* Of total acquired.

After considering the marked depreciation in the stock of the London General Omnibus Company and the shares of the London Road Car Company, which has been recently chronicled, and which nothing in the condition of London but the advent of the motor 'bus can explain, and pointing out that the great 'bus companies have been most mistaken in not themselves adopting the motor 'bus earlier, the article proceeds as follows :—

While recognising this, however, we cannot but deprecate the rush of new motor 'bus companies into the field. As in the cycle trade and the motor car construction industry, so in this case, the result of such a flood of prospectuses may easily be a weeding-out process which will not prove pleasant to some of the shareholders. The extent to which these promotions have attained during the current year may be judged from the following table :—

Company.	Total Capital.	Issued Capital.		Total Issued Capital.‡
		Pf. Shrs.	Ord. Shrs.	
	£	£	£	£
Automobile Cab. ...	100,000	nil	100,000	100,000
Ct. & Sub. Mot. Cab ...	100,000	nil	100,000	100,000
Lon. and District Motor 'Bus.	*405,000	nil	250,000	255,000
Lon. Motor 'Bus ...	†303,000	200,000	100,000	303,000
Lon. Power 'Bus. ...	200,000	nil	200,000	200,000
Lon. and S.-C. Motor ...	100,000	nil	100,000	100,000
Motor 'Bus ...	*305,000	nil	150,000	155,000
Total ...	1,513,000	200,000	1,000,000	1,213,000

* Including £5,000 deferred shares. † Including £3,000 deferred shares. ‡ Including deferred shares.

Here we have a total capital of over one and a-half millions sterling (of which by far the greater part has been issued) embarked in the exploitation of London by motor omnibuses and cabs. Huge as the traffic of the Metropolis is, one cannot but conclude that the thing is being overdone, especially as further promotions are in the wind. This is the one extreme. The other, of not doing nearly

evidence of the experimental nature which still attaches to these undertakings, points out that so far only two companies, the London Motor Omnibus Company and the London Power Omnibus Company, are in a position to furnish actual results. The statistics of the former company, include the running of 'buses from the beginning of January to the end of October. After allowing for renewals and depreciation, 2d. per mile net profit is put down as the amount earned; though during October they estimate their profit at 3d. per mile. The London Power Company, on the other hand, estimates its net profits at 3½d. per mile without allowing for depreciation, which it calculates at 12 per cent. From the various prospectuses of motor 'bus companies, the above table of costs and profits, &c., has been compiled.

After remarking that with the exception of the two companies referred to above, these estimates are to some extent problematical, while the variation in the estimates of profit earned are distinctly noticeable, our contemporary concludes as follows :—

Needless to say, the solution of these questions, as well as of the probable gross receipts, must determine the financial future of these undertakings, and until they can be ascertained with some approach to accuracy those who invest their money in such ventures are taking a leap almost in the dark. It has also to be remembered that the old horse companies, although they have hitherto been supine, are by no means yet "played out," and are still likely to prove most formidable competitors in the motor 'bus business.

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THE illegitimate use of motor horns—as annoying in Ceylon as at home—has caused the Automobile Club of Ceylon at Colombo to petition all municipalities in the island to consider the desirability of prohibiting the use of motor horns on other than motor vehicles.

CORRESPONDENCE.

* * *The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.*

THE TOURIST TROPHY REGULATIONS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I quite agree with what Mr. Edge says in his letter to you with reference to steam cars.

It seems to me that the new Tourist Trophy Regulations as they now stand with regard to steam cars are unfair both to petrol and to steam cars. They are unfair to petrol cars because they give steam cars using petrol as a fuel an advantage over petrol cars; they are unfair to steam cars, because they make steam cars using a cheaper fuel than petrol go the same distance on a gallon as steam cars using petrol.

The only just and fair method of settling this question of fuel, to my mind, is to make one fuel—petrol, for instance—the standard or unit; all cars, steam or otherwise, using petrol to go the same number of miles on a gallon; cars using any other sort of fuel to go a less or more number of miles on a gallon, as the price per gallon of their fuel varied with the price of petrol.

I cannot see why the Tourist Trophy Race should not be thrown open to all kinds of cars using any kind of fuel, but it is obviously unfair to make cars using a cheaper fuel go the same number of miles per gallon as cars using a dearer and more dangerous fuel.

The use of a cheap, less dangerous fuel, ought to be encouraged as much as possible, but as the rules of the Tourist Trophy Race now stand, it is more advantageous to use petrol than any other fuel.

Yours faithfully,
J. E. G.

York, Dec. 5th.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I deprecate the use of the correspondence columns of THE AUTOMOTOR JOURNAL by those interested in the motor trade in the discussion of questions which affect their goods. Some members of the trade agree with me on this point, while others are careful that their names, signed to some letter, appear nearly every week in the motor papers.

I certainly should not have entered upon the controversy started by Mr. Claude Johnson had not the Hon. Chas. S. Rolls, who is associated in business with Mr. Johnson, written the letter which you have seen fit to publish on page 1545 of your issue of Dec. 9th. Apparently Mr. Rolls does not think Mr. Johnson sufficiently capable of explaining his use of the word "inefficient," and has come into the lists to defend Mr. Johnson's use of that term as applied to the steam car.

To term the steam car "inefficient" because it will not run 25 miles on one gallon of fuel over such a route as the Tourist Trophy course in the Isle of Man, may possibly be correct, if one wishes to strain a point. The customary use of the word "inefficient," however, is such that to apply that word to some steam cars on the market very naturally gives offence, not only to their manufacturers but to their users, for the sole and very good reason that such steam cars are anything but inefficient.

Were I to use the word "inefficient" in connection with a car which was to compete, or had competed, in the Tourist Trophy Race, I should judge that it would better be applied to a car which was not capable of completing 2 miles out of the 208 miles of the race.

"Inefficient" or "efficient," the "White" cars in next year's Tourist Trophy Race will certainly complete a greater portion of the course than 2 miles of it.

The majority of the correspondents who are dealing with the Tourist Trophy Race lose sight of three cardinal points. These are as follows:—

1. The technical committee of the club, as I understand it, wishes to promote, in promoting the Tourist Trophy Race, a competition wherein, by a limitation of fuel consumption, piston displacement will be so limited that the competing cars will be confined to a limited horse-power, say, for the purpose of argument, 24-h.p.

2. The technical and races committees, as I understand them, wish to find a basis of fuel allowance whereby a steam car will be also limited to, say, 24-h.p., and in doing so, take into consideration the generally admitted fact that a steam car, no matter how efficient, consumes a greater quantity of fuel (regardless of what the price of that fuel may be) per mile, under certain circumstances, than is used by a petrol car.

3. That the question of price has no particular effect on this argument, except in so much as it enables the owner of a steam car to run his car 100 miles for practically the same cost of fuel as a petrol car can run, although a greater quantity of a cheaper class of fuel is used.

If one wishes to find out whether or not the makers of steam cars think that the mere fact that their cars consume more actual bulk of spirit per mile than is consumed by petrol cars needs to be established, I would respectfully refer the inquisitive to the catalogues of the steam car manufacturers.

I wish to close my letter as I began it with an apology for entering these columns with a letter on such a subject, but it is entirely against all reason to expect me, as a steam car manufacturer, to sit quietly by and listen to the cool denunciation of my particular product by those who represent a product which might well be proud of the record which the car that I represent has gained at the hands of the A.C.G.B.F. alone, to say nothing of its record in various other parts of the world, extending over the last five years.

Do let us conduct the automobile trade without denouncing each other's products, and if one wishes to say that a petrol car runs further on a gallon of fuel than a steam car will do let us say so, and not wrap up the statement in a word like "inefficient," which may mean a variety of things; but unless one searches for an excuse to make it do so, could never in fairness be applied to a steam car.

Yours faithfully,

Dec. 8th.

FREDERIC COLEMAN.

POLICE PERSECUTION—AND AN APPEAL.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—We have had a tough and bitter fight, but at last the truth prevailed, and a British jury has expressed its definite opinion of the evidence given by Superintendent Marks and his satellite, Police-Constable Sharp, by accepting our cyclist patrol's testimony in the face of their sworn condemnation.

Our committee recognised that this case had a far-reaching issue, that it menaced the safety of anyone who dared to tell the truth in defence of a motorist. We, therefore, poured money out without a thought other than the collection of overwhelming expert evidence and adequate representation by counsel.

But for this a shameful miscarriage of justice must unquestionably have occurred, and a kind of Spanish Inquisition would have superseded the present County Bench proceedings, which most of us think are awful enough. In these circumstances I put it to you, sir, that we deserve more than mere sympathy or congratulation. Our good work on the road is sadly curtailed by so great a drain upon our financial resources, and this should not be. It need not be if all motorists, in the cause of whom this battle was fought and won, will contribute to its cost. I therefore earnestly beg your valuable influence to the end that both makers and users of motor cars will give freely to our Defence Fund.

Donations or subscriptions will be gratefully acknowledged by the Executive Committee of

Your obedient servants,
THE AUTOMOBILE ASSOCIATION.
STENSON COOKE,
Secretary.

18, Fleet Street, E.C.
Dec 12th.

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A WRITER in the *Daily News* is quite concerned about the 10 per cent. dividend which the London Motor 'Bus Company have recently declared. He seems to think it quite a scandal that a private company should be earning so much money out of catering for public locomotion!

ALL interested in the technical development of the automobile will learn with great regret of the sudden death of Mr. I. M. de Havilland, of Messrs. Legros and Knowles, Limited. Mr. Havilland entered the service of Messrs. Legros and Knowles in April last, and has been the chief designer of their newest types of car, which attracted so much favourable attention at the recent Olympia Exhibition. Mr. de Havilland was an enthusiast for the automobile, and Messrs. Legros and Knowles inform us that his whole heart was in the production of the very best car that could be brought out. About a fortnight ago he fell a victim to a severe attack of influenza, the effects of which were responsible for his death, which occurred on Sunday last. The occurrence is a particularly sad one, as Mr. de Havilland was only twenty-seven years of age, was already in a fine position, with an assured future before him, as the firm which he had served so well had decided to take him into partnership.

THE GUILDFORD PERJURY HUNT—ON WHICH SIDE WAS THE PERJURY? ACQUITTAL OF THE AUTOMOBILE ASSOCIATION'S SCOUT.

SOME few weeks ago we referred to the case of the Automobile Association's cyclist scout Jones, who, on a charge of perjury, was arrested by the police on a Saturday afternoon, when there was no possibility of bringing him before a magistrate and liberating him on bail, so that, though it was well known where he lived, and his address in the hands of the police, he was kept in durance vile till the following Monday. The last act of this drama was played out at the Guildford Assizes last week, when Mr. Jones was finally brought to trial on this charge and—acquitted. We refer editorially to this case in our present number, more particularly to the amazing remarks made by Mr. Justice

Grantham in reference to it, when charging the Grand Jury. We are able below to reproduce verbatim some of the Judge's most confused, remarkable, and entertaining utterances, but in order that the situation may be fully grasped, we must recapitulate the circumstances out of which the charge of perjury against Mr. Jones arose. On the 23rd of September last Mr. Jones was performing his functions as one of the scouts of the Automobile Association on the Fairmile, near Esher, where a notorious trap of Superintendent Marks has been for months organised. Into this trap, just on Mr. Jones's arrival, entered Mr. Johnson, and as Mr. Johnson passed along the measured stretch of road, Mr. Jones rode on his bicycle behind his car. From the pace at which he was himself riding, he was convinced that Mr. Johnson could not have exceeded the 20-mile limit, and he subsequently communicated his name to Mr. Johnson as that of a witness who was willing to give evidence in his defence. When Mr. Johnson's case was brought before the Kingston magistrates, Mr. Jones gave the evidence in question, viz., that he was riding behind the car at the time, but in spite of this Mr. Johnson was "duly" convicted. This occurred on the 19th of October, and it was not till Thursday, the 9th of November, that Superintendent Marks applied for, and obtained, a warrant for the arrest of Jones, on the charge of perjury in connection with the evidence he tendered as above referred to. The execution of the warrant was, as pointed out, delayed till the Saturday afternoon, and finally Jones was brought before Mr. Justice Grantham and a jury at the Guildford Assizes.

At the trial the police asserted that Jones had not

been following Mr. Johnson's car on the occasion in question, although he swore that he had done so, and that he was not visible anywhere when they stopped Mr. Johnson's car. They produced two "independent" witnesses, the evidence of one of whom, however, upset the police case by corroborating the defendant's version of his actions, while the other failed to throw much light on the situation.

Mr. Justice Grantham summed up the case. After a long and rambling statement, in which he declared, at much length and with frequent repetition, that there was a great deal of feeling against motorists, that they were constantly infringing the law, that the police were quite justified in setting traps for

motorists as they did do, and that it was quite wrong for anyone to warn motorists where such traps were arranged, he concluded as follows:—

"I am astonished at the evidence given by the prisoner. It seems to me he has put himself in an extraordinary position. If his story is true, it is extraordinary that he should have acted as he did. The object of his position as a scout is to draw the attention of the police to anything going on improperly on the road affecting motor cars, and to render the police all reasonable assistance in a prosecution. He ought not to be afraid of the police. If these instructions issued to him are genuine, their object is to assist the police. Then why should he not have stopped? But he did not stop at all. When he saw a motor car in difficulty he goes away. He does not stop. Whether he was afraid of himself, and that he might get into a scrape—"

Mr. Gill (for the prisoner): If you will look at No. 4 of the instructions, my lord, you will see—

Mr. Justice Grantham: I was reading it, and showing that apparently their object is to help the police. If the prisoner sees the police talking with a motorist, why should not he stop and ask what was the matter? But he goes by and does not give his name, and actually Johnson, the man guilty of exceeding the limit, does not know he was there. What did he say before the magistrates? "I saw the car stop. The inspector and the P.C. were standing together. The car stopped before getting to the inspector. I went down the road and waited to offer my services as a witness." What was the good of going down there if he was waiting to offer his services as a witness? Why not go up to Johnson? Why not go up to the policemen? But he does not do so. (Reading) "I waited to offer my services as a witness. The car came back, and I stopped him, and he said he was not going more than 15 or 16 miles an hour. I agree with what the defendant said." Why does he not go up and say that at the time? If he was not afraid to speak to the police I think he would have done what every sensible man would have done. Therefore this statement—I do not say it is intentionally untrue, but it is apparently untrue and misleading. Because if these instructions mean anything, why, in the name of common sense did not he pull up? He saw the inspector and the man in uniform.

Photograph by Campbell Grey.

POLICE versus "A.A." SCOUTS.—The Marks trap on the Fairmile.—Where trapper Marks was "hedgehogging" behind palings upon private property. The exact spot is where a man is visible over the fence. It was from this point that Marks alleged it was possible to see a motor car coming from a bend in the road about a quarter of a mile away—a contention hopelessly refuted by means of photography. In our other picture this is demonstrated clearly.

He knows what is going on. He knows it is a question about speed, and yet he never goes up. It is the most extraordinary conduct I ever heard. Then he goes on: 'I came back after the car had been stopped.' How can he if he was behind it all the time before? That statement is inconsistent with his own story—'I will swear I was behind the car when it was timed over the measured distance.' Well, if he was, he could not have come back when the car was stopped. The whole thing is incomprehensible, and he puts himself out of court. Then as to the witness Mason. It is held that his evidence is in favour of the prisoner. His evidence is *not* in favour of the prisoner at all. In one sense it differs from that of Inspector Marks. But Mason's evidence, if you are to believe him, proves that it is quite clear the prisoner has perjured himself in his evidence, because Mason says: "I saw him before I saw the car. I saw him between Claremont Lodge and Fairmile Cottage, and he passed me." That is to say he came up from Cobham.

Mr. Gill: I am sure your lordship has got it quite wrong. He was riding *towards* Cobham.

Mr. Justice Grantham (reading): "He was then going towards Cobham, and that was before I saw the car."

Mr. Gill: Certainly. Twenty or thirty yards in front of it.

Mr. Justice Grantham: Then if he was there before the boy saw the car, the prisoner could not have been behind the car. It is as clear as possible, and it shows that Mason's evidence confirms the evidence for the prosecution, but no doubt there is a difference. Mason says: "I saw him between Claremont Lodge and Mr. Tabor's house before the car came along." Marks said he had gone by a quarter of an hour before, and gone by towards Cobham. And if he had gone by towards Cobham, Marks would not know he was coming back. It was manifest he was coming back, otherwise he would not be where he was. He had gone on, as Marks said in the first instance—he had gone on towards Cobham, like a scout, up and down the road. It is as he comes back—

Mr. Gill: I am sure your lordship is mistaken. He said over and over again he was riding a bicycle towards Cobham. That was almost at the time the car was stopped.

Mr. Justice Grantham: I took my note. "I saw the prisoner before I saw the car." It only shows he was on the Cobham side of the car. According to Mason he was on the Cobham side of the car. Whether he was going up or down is perfectly immaterial. If he was on the Cobham side Mason's evidence confirms the evidence of Inspector Marks and the other witnesses, and I think I am stating it clearly, and should be allowed to proceed without these interruptions. The question is, "Was he behind the car?" I think I am entitled to say that it is extraordinary that, being there for the purpose of being a witness, he should not go up or speak to the police, and that it was only when he met Johnson at five o'clock in the afternoon, that he spoke to him about it. It is for you (the jury) to say whether or not you believe the police when they say that this man was not there at the time the car was stopped, that he was not behind the car, that he had not been riding behind it, and that therefore his evidence was perjured, as given by him for the purpose of assisting the defendant Johnson, by saying, 'I was riding behind the car all the way along the measured distance, and therefore I have authority for saying he was not going twenty miles an hour.' If you believe his own statement that he was behind the car, is more reasonable than those of the other witnesses, then you will say he is not guilty. You must say he did the best he could for the Association. Nobody says anything against the young fellow before, but if you find that the evidence is that he said something which was untrue in a court of justice, you must return him guilty. Now consider your verdict.

The jury returned a verdict of "Not Guilty," and the prisoner was discharged.

Photograph by Campbell-Grey.

POLICE versus "A.A." SCOUTS.—A photograph of the Marks trap on the Fairmile, looking from where Marks was "hedgehogging" behind the palings. Constable Sharp claimed that he was easily able to determine when a car was exactly level with, or had passed, the gate seen in the distance, opposite which a man appears to be standing in the road. Upon this theory the main contention of the police hinged; Sharp swore that the car was about 30 yards past the gate. When confronted with the above photograph, neither Marks nor anyone else was able to say correctly where the man in the road was standing in relation to the gate. Guesses placed him 20 and 30 yards on the other side, level with the gate, and so on, but none came near the truth, viz., 30 yards this side of the gate.

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ONE of the good people of the type who always object to everything—a clergyman by the way—has been objecting to the amount of money spent on motor cars by the wealthy, and thinks that it would have been much better that they should spend all this wealth on improving the unhealthy homes of the people. The reverend gentleman leaves out of sight altogether the

great and increasing army of mechanics, tyre makers, oil manufacturers, and those engaged in subsidiary trades who would, if he had his way, be thrown out of work, and whose want of employment would go a long way to completely neutralising the advantages which would be obtained by the method of employing capital which he advocates.

RACES, RECORDS, AND TRIALS.

THE TOURIST TROPHY RULES—THE STEAM CAR DIFFICULTY.

If there is one thing to be deplored in connection with the Tourist Trophy Race, as a type of contest, it is that the very basis on which the rules are framed is liable to prove misleading to the general public, and to all those who fail to grasp its real significance. It is, in short, most unfortunate that the event should appear to have so close a semblance to a fuel-consumption trial, for everybody knows that the mere cost of the fuel consumed by a pleasure vehicle is quite a minor matter. For our own part, we have realised from the very first that this misapprehension was likely to arise, and it was to a great extent because we did so, that we published so comprehensive a series of articles on the subject in the present volume of *THE AUTOMOTOR JOURNAL*. The fact remains, however, that this very disadvantage—the liability of the public to regard the contest primarily as a fuel-consumption trial—is an ever present danger to the success of what is otherwise a most excellent type of contest. The fuel-consumption basis is unquestionably a most admirable method of restricting the actual power of petrol engines, and, of course, under the Tourist Trophy rules, the fuel is restricted purely for attaining this latter very essential purpose.

The other great difficulty with which we are now concerned is one that has found expression in one form or another for a very long period, though not unnaturally it has been brought into particular prominence quite recently. There has been a strong feeling on the part of those who advocate the many merits of steam cars that such cars have been debarred unfairly from taking part in the various contests of the year, and that such bodies as the A.C.G.B.I. have shown undue preference to the interests of the petrol vehicle. It does not appear to be generally recognised that, however willing the club might have been to include steam cars, it is practically an impossibility to find an equitable means of doing so, except in such purely speed contests as the Gordon-Bennett Race (where engine-power is unlimited) or in such long-duration competitions as the Reliability Trials (where separate tests can be made for various characteristics, and the competing cars can be divided up into numerous classes). Even leaving steam cars out of consideration, it has been found quite sufficiently difficult to organise any really useful event for petrol cars, and one of the greatest problems has been that of finding a satisfactory limitation or "applicable definition" of engine-power. Further than this, take the case of hill-climbing contests, in connection with which no satisfactory solution has yet been arrived at, and never will be if a formula is expected to accurately differentiate between the relative merits of a petrol car costing £150 (say a 7-h.p. Oldsmobile) and a £1,500 Mercedes!

It is just because the A.C.G.B.I. have recently attempted to modify the Tourist Trophy rules so that steam cars of an approximately equivalent character should be able to compete on nearly similar terms with petrol cars, that our correspondence columns and those of the entire motoring press have recently been inundated with letters of protest on the subject—not a few, be it noted, from dissatisfied builders of steam cars. For our own part, we cordially welcomed the straightforward statement issued by the club at the time that the

proposed rules for next year were made public, for this was the first occasion on which the real position had been defined officially, and an authoritative reason given for the apparent neglect of steam cars in club competitions. The statement then made fully demonstrated the spirit which dictated the action of the Club Committee in asking the Technical and Races Committees to devise some scheme whereby steam cars could be given their due in next year's Tourist Trophy race. And the *attempt* which was made by those committees to solve the very difficult problem was a conclusive proof of the sincerity with which the matter had been considered in all its bearings by them.

It is unquestionably a moot point whether steam cars and petrol cars should be allowed to compete against one another in the Tourist Trophy race on terms which cannot but be purely arbitrary, for the event is essentially *not* a handicap, and the very nature of the rules would—on the suggested fuel allowances—give it the characteristics of a handicap. The real point at the moment, however, is that there is an evident tendency for some of those who are interesting themselves in this subject to forget the nature of the fuel-consumption basis in the Tourist Trophy, and to regard it as a matter of cost of running rather than the limitation of engine power, which it is intended to be. The effect of giving each petrol car an allowance of one gallon for every 25 miles to be traversed is essentially equivalent to specifying a certain maximum power for each petrol engine, and of giving the Trophy to whichever car is best able to make effective use of that power in driving a car of a specified weight. Were it not for the tendency there would then be for the engines to be run at abnormally high speeds, and were it not for certain other equally good but subsidiary reasons, the cylinder dimensions might just as well have been limited instead, for that method would also restrict the power available. Thus it will be seen that nothing would stand in the way of similarly limiting the engine-power to precisely the same extent on a steam car if it were possible to institute exact comparisons between their steam engines and the latest petrol engines. But this obviously cannot be done with any degree of accuracy, and it is only in the light of practical experience at *any particular time* that even an approximately correct estimate could be made of the relative fuel-consumption of an up-to-date petrol car and of an equally up-to-date steam car. As the Technical Committee have said: "The many radical and inherent differences between internal combustion engines and external combustion engines" render it "impossible to arrive at any accurate basis by which steam cars can be placed on a precisely parallel footing with petrol cars in the Tourist Trophy race."

To make the matter worse, there is not even the same uniformity amongst the comparatively few makes of steam car that exist, with regard to the fuel they use, as there is with petrol cars. This in itself naturally constitutes a further difficulty, besides again tending to raise the false issue of "cost." No one can say what quantity of one fuel will ensure equality of engine-power as compared with another fuel on the various types of car, and it would be an entire departure from the very spirit of the Tourist Trophy rules if the cost of the fuel, or even its thermal value, were made to regulate the quantity allowed in each case.

It follows, therefore, that one has, however reluctantly, to admit that the Tourist Trophy type of contest does

not solve the great problem of providing an automobile event which is open to all types of touring car—steam as well as petrol—by enabling them to compete against one another on exactly equal terms in the same short-duration race. The most it does is to afford an excellent event for “petrol” cars (using petroleum spirit) by *themselves*, or for such steam cars as burn petrol by *themselves*, or for steam cars burning some other easily definable heavier liquid fuel by *themselves*. Any attempt to arbitrarily fix a definite relationship between type and type is bound therefore to savour of “handicap,” and is therefore open to comment. Were there as many makers of steam cars as there are of petrol cars, it might well be possible to fix one fuel-allowance for steam and another for petrol cars, in the same way that has already been proposed by the club, and let all the cars run over the same course at the same time in two distinct categories. But there are so few makes of steam cars, that this is hardly feasible, and it follows, therefore, that if steam cars are to be allowed to run at all, with any chance of winning the Trophy, the suggestion of different fuel-allowances, already made by the club, is the nearest possible approach to anything that is practicable. It is very unfortunate that there should be so much difficulty in giving a really good steam car its deserts in so important a competition as the Tourist Trophy race, but it cannot be too widely recognised that it is in no way a discredit to “steam” that this should be so.

[We now learn that, upon further and fuller consideration, the Club Committee have formally resolved not to differentiate between petrol cars and steam cars in next year's race, but that all competing vehicles will be given the same quantity of fuel. However much one may regret that steam cars are thus virtually prevented from having any chance of winning the Trophy, this latest decision will not be entirely unexpected by those who are conversant with the many *pros* and *cons* that are dealt with in the foregoing article.—ED.]

UPON the recommendation of the Races Committee of the A.C.G.B.I., as none of the entrants of the eighteen cars “placed” in the Tourist Trophy Race has claimed any award under the “British-made” resolution, the committee of the club has withdrawn the resolution for the 1905 race.



A SOMEWHAT remarkable case has just been decided by the Paris courts. On May 1st of the present year an automobile passed a cyclist on the road between Melun and Paris. The motor car raised so dense a cloud of dust that the cyclist, who was enveloped in it, could not see his way, with the result that he swerved across the road, was overtaken by another motor car, knocked down and killed. Actions were brought both against the driver of the second car, who actually injured the cyclist, and the driver of the first car, who actually raised the dust. The result has been that the driver of the second car has been compelled to pay a fine of £40 and £120 compensation, but the driver of the first car, which raised the dust, has not only been acquitted, but his claim for £8 for unjustifiable prosecution has been allowed. Let us hope that the penalties which have been incurred by the reckless motorist who drove into the cloud of dust will have a beneficial effect on the other side of the Channel.

It has also been decided that this resolution regarding special awards for British-made cars shall be embodied in the Regulations.

Hill-Climbing Formula.—The Committee of the A.C.G.B.I., being anxious to obtain some solution to the much vexed question of a workable formula for hill-climbing contests, set the Expert and Technical Committee of the Club to work to prepare a suitable one. All to no purpose, however, as after a lengthy discussion the Technical Committee have passed the following resolution:—

That in view of the fact of its being necessary, in any satisfactory hill-climbing formula, to co-relate numerous points that only permit of such co-relation on a purely arbitrary basis, it is, in the opinion of the Technical Committee, inadvisable for the Club to adopt, or sanction, any hill-climbing formula whatever, for indiscriminate application to events of this character.

The French 1906 Speed Event.—As we last week intimated, everything pointed to the decision of the A.C. de France to organise an event for big racing cars during 1906. This has now been confirmed, and considerable discussion has already commenced in France as to the circuit which is to be chosen for the occasion. In similar manner to the early part of this year, the multiplication of suitable (?) circuits is positively appalling. The most favoured of all may be taken as that of Aix-les-Bains for two reasons, primarily from the fact that the town and district is extremely wealthy, and those in power are prepared to give very substantial donations towards the organisation of the race, and, secondly, from the fact that the Gordon-Bennett Circuit being shifted this year to the Auvergne district was a great blow to the Aix municipality, who had practically regarded the choice of their roads as certain. It is to be hoped that they are not doomed to a disappointment again by the counter proposals which are on all sides being prepared by other localities where the authorities have attractive circuits to offer, including the Auvergne.

RUMOUR in New York states that an American constructor is building a 250-h.p. racing car from designs by M. Francois Richard, for Alfred G. Vanderbilt. Sartori, the Italian driver, is credited with being destined to drive this car at the Florida Race Meeting.

THE Kingsbridge magistrates are to be congratulated on their vigorous support of the local bye-laws in regard to the lighting of vehicles. In defiance of these, a carter named Henry Hart was recently drawing three wagons loaded with long fir poles along a road in the neighbourhood. The fir poles on the rearmost of the three wagons projected 30 feet behind the cart by which they were being transported, and no lamp was attached to the end of them to warn people approaching of the danger which threatened them. The result was that Dr. H. Grey, of Kingsbridge, drove his motor car into the projecting poles, his car being seriously injured by the impact. In the proceedings, Dr. Grey very justifiably termed such an arrangement “a moving death-trap,” and the Bench, rightly regarding the offence against the county bye-laws as “one of the most serious which could be committed,” fined the reckless carter 40s and 16s. 6d. costs.

CLUBS AND ASSOCIATIONS.

Founder Members' Dinner at the A.C.G.B.I.—On Wednesday of last week, the second of these interesting annual functions was held at the club, with Mr. F. R. Simms in the chair, and many were the pleasant reminiscences that were brought up amongst the "old fogeys" who were thus brought together once more. Col. Crompton proposed the toast of the evening, "Our Noble Selves," in a particularly happy vein, and his lead was well followed up by Mr. Instone (in the regretted absence of Mr. Harrington Moore), by Mr. Claude Johnson, and by the Hon. C. S. Rolls (as the youngest founder member), who responded. Referring to the comparatively small size of the gathering, more than one speaker suggested that a summer tour might prove more successful as a method of re-union for "Founders," and Mr. Edge brought forward a proposal that they should form a sub-committee of their own for securing greater cohesion, as of old. An amusing speech from Mr. Bird proved a further diversion during the evening, and Col. Holden recalled much that is of great interest in the history of the movement in proposing the toast of "the Chairman," Mr. Simms. On Mr. Johnson's suggestion, telegrams (or letters) of regret for their absence, of remembrance, and of gratitude for past services were sent to Mr. Evelyn Ellis, Mr. Paris Singer, Mr. Harrington Moore, Sir Alfred Harmsworth, and Mr. Roger Wallace.

Brighton and Hove Automobile Association.—The monthly meeting of the Association was held last week. Seventeen new members were elected. A resolution was proposed that the chiefs of police at Brighton, Hove, and Lewes, be asked to supply information regularly to the Association, notifying any cases against automobilists. A further resolution was unanimously adopted, that steps be taken by the Association to prohibit the issue of licences to unskilled drivers; and another motion protested against increased taxation of automobilists. With regard to the proposed exhibition in January at the Dome and Corn Exchange, it was resolved that a special committee be formed to collect the monies in connection therewith. Mr. J. E. Davis, M.I.M.E., was appointed consulting engineer to the Association, and it was resolved that a sub-committee be formed for the purpose of advising the Association's Committee as to the holding of examinations in Brighton for proficiency certificates of motor car driving.

Ipswich and East Suffolk A.C.—Last week, the third Annual Dinner of the club was held at the White Horse Hotel, Ipswich, Mr. F. L. Bland, the chairman of the club, presiding. An influential gathering was secured, including Mr. H. Miller, East Suffolk county surveyor; Mr. Whiting, Mr. W. P. Burton, Mr. B. W. Elkington, Mr. Rees Jeffreys, Dr. Rowe, Dr. Moseley (hon. secretary of the club), Dr. Ward, Dr. Hossack, Dr. Hoyland, Dr. Vincent, Mr. Lionel Vulliamy, Dr. Wetherall, Mr. A. E. Jillings, Mr. A. J. Snowden, Dr. Longworth, Mr. E. C. Sayer, Dr. Heath, and Canon Pigot.

Mr. W. P. Burton, in a much-applauded speech, when proposing the toast of "The Town of Ipswich and the County of Suffolk," said that those outside automobilism might say that motorists had no right to criticise the roads, because they did not pay specially for a specially good road for their enjoyment. But he contended that every Britisher paid towards the upkeep of the roads, whether in town or country. He criticised the various methods of road making in different counties, and concluded by bearing witness to the fact that the Suffolk roads were improving, and by hoping for more improvement.

Mr. Rees Jeffreys, in reply to the toast of "The Motor Union," proposed by the chairman, advocated the formation of clubs as the best way of helping to spread the light and advantages of automobilism. It would, he said, be through the existence of such clubs as he was addressing that the change would be brought about with the minimum amount of friction. In the neighbourhood of Ipswich it seemed to him there had been much less difficulty than in some other parts of the country, such as Surrey, Sussex, and some parts of Yorkshire, and he attributed that largely to the excellent influence of the local club.

Ladies' A.C.—The greater portion of Mr. R. Sedgwick Currie's fifth lesson was given in the garage behind the club. Here, upon a 25-h.p. Iris he showed the members the different parts—which they had studied separately and in detail at the previous lessons—as they are placed on a chassis. The members seemed especially pleased to be able to examine the new universal cardan shaft with which this chassis is fitted. The "Iris" had been lent to the Club by Messrs. Legros and Knowles.

The committee have asked Mrs. Manville to lecture to her fellow members at the club on her motoring experiences, more especially

those connected with the Bavarian Races. Mrs. Manville has acceded to their request and promised to reserve an afternoon for this purpose soon after her return from Egypt next February.

Manchester A.C.—Following the house dinner of the club at the Midland Hotel, Manchester, on the 4th December, 1905, a paper on the "Propagation of Flame in relation to Petrol Motors" was given by Dr. Ormandy. Mr. T. W. Grace, president, occupied the chair.

The first portion of the lecture was devoted to a discussion as to the manner of the propagation of flame through a gaseous mixture. The necessity for the conversion of the fuel into a vapour as distinguished from the finely divided spray was pointed out. The fact that the velocity of the propagation of flame through a gaseous mixture is so largely dependent upon the presence, or otherwise, of an excess of air was illustrated. The influence of compression upon the rate of propagation was also referred to. A consideration of the points touched upon in the early part of the lecture led to the conclusion that it was impossible to arrange a sparking advance by control from the governor in a way that would give the best results under all conditions, since with the engine running at any one given speed, the best position for the spark varies according to the quality of the mixture and the compression at the time. The influence of the spark and the ratio of the cooling surface to the compression space capacity was also discussed at some length, and the conclusions drawn were favourable to the cylinder without side pockets and with the valves in the head.

After the paper was over, a discussion ensued in which a number of members, including Messrs. T. W. Grace, F. Smith, J. A. Morris, and J. Lester, took part.

Society of Automobile Mechanic Drivers.—An extraordinary general meeting of this Society took place last week, when the future conduct of their affairs was discussed with the object of placing it on a sound working basis. Mr. Budd occupied the chair, and drew attention to the chief objects of the Society, which comprise an employment bureau, lectures, provision of maps, &c., and the general advancement, benefit, and protection of its members. The financial report, as presented by the treasurer, Mr. Groves, disclosed a satisfactory state of affairs. An important subject was then discussed in regard to the registration of the Society under the Friendly Societies' Act. The advantages in favour of this course were many, as the Society was intended to protect not only its members, but also owners and manufacturers, against the large number of doubtful and pretended drivers who were, by their tactics, bringing the chauffeur's profession into disrepute. The Society, it was explained, were anxious to do everything to put down frauds and expose swindles especially in connection with so-called motoring schools, and as a benefit society, amongst other things, they would be enabled to insure their members against sickness, accident, or want of employment. It was decided unanimously, therefore, that the Society should be registered under this Act.

It was further arranged that some time in January next, towards the end probably, an invitation concert should be held in order to make known the Society's objects, and thereby obtain more adherents amongst chauffeurs as well as owners and manufacturers. The annual general meeting was fixed to take place on January 15th. Mr. Groves, in reply to some queries as to the method of eliminating incompetent drivers, stated that the Society intended, through their Examining Committee, to test each candidate, and that all intending members would have to pass an examination. Those who were unable to come through this, it would be better for the Society and the whole of the industry to do without.

THE Eastern Counties Automobile Club have changed their name to the Ipswich and East Suffolk A.C. It was felt that owing to the formation of important clubs in the territorial area suggested by the name Eastern Counties A.C., it was very desirable to alter the name as it only might mislead in the future.

A LARGE number of students and friends foregathered at the Northampton Institute on Friday evening last, the occasion being the distribution of prizes and certificates awarded during the session 1904-5. At the Northampton Institute teaching in connection with automobilism is regarded as an important part of the objects of the establishment.

The Principal (Dr. Walmsley), in delivering his report, spoke of the great strides which the work had made in the session just concluded, and said they had now reached the limits of their accommodation. Among other interesting items, he mentioned that the

number of student-hours worked were now double what they were during the first session. As this practically means that the students must have worked twice as hard, it probably accounts for the long list of successes.

Sir Wm. Preece, in the course of a telling speech, dwelt upon the value of technical education to a nation, and pointed out that it is only by keeping up-to-date with our education that we may hope to maintain the supremacy of British workmanship. Probably the most striking illustration of the value of technical education to a nation was shown in the case of Japan, which in a few years had left her neighbour, China, far behind, although the latter country was intellectually the finest educated in the world.

He deplored the lack of local patriotism. Although a good many fortunes had been made in London, yet there was not a single educational institution which was adequately endowed, and he



MOTOR CYCLING.

Motor Bicycle World's Records.—On Saturday last, at the Paris Parc des Princes track, Giuppone, on a Peugeot motor bicycle weighing 52 kilogs., lowered the world's records for that type of machine for all distances up to 102 kiloms., and, in addition, for the hour. His distance for the hour was 102'368 kiloms., against Anzani's previous record of 93'78 kiloms., and his time for 100 kiloms. was 58 mins. 38½ secs., against Anzani's previous record of 64 mins. 14½ secs. The start was a standing one, and, during one circuit of the track, which measures 666 metres, Giuppone was timed for 21½ secs., equal to a speed of 112 kiloms. per hour. It is not surprising to learn under these conditions that the machine was mainly of special make in many parts, including the frame, tyres and belt. The chief intermediate times were as follows:—

Giuppone.			Anzani (Previous Record).		
Kiloms.	m.	s.	h.	m.	s.
10	...	5 34½	...	0 6 29½	
20	...	11 21½	...	0 13 1½	
30	...	17 14	...	0 19 37½	
40	...	23 8½	...	0 26 0½	
50	...	29 1½	...	0 32 28½	
60	...	34 57½	...	0 38 56½	
70	...	40 54½	...	0 44 49½	
80	...	46 51½	...	0 51 10½	
90	...	52 45½	...	0 57 31½	
100	...	58 38½	...	1 4 14½	
Half an hour			Kiloms.		
...			46'620		
One hour			Kiloms.		
...			93'780		

THE Lewisham Automobile Club are promoting an open hill climb for tricar, to take place on January 27th.

Riley Cycle Company, Limited.—The annual report states that in the year ended September the company made a net loss of £3,996, the adverse result being due to the manufacture of motor cycles having proved disastrous owing to the considerably reduced

thought this should not be the case. While the technical side of the Institute had been so successful, he was very glad to learn they had not lost sight of the social and recreative side. The success of young Englishmen was largely due to the discipline, judgment, and self-reliance which they had learnt in the course of their recreations.

Sir William then distributed the prizes and certificates, numbering considerably over 500, and after the usual votes of thanks had been passed, the company visited the laboratories, workshops, &c., where a number of students were at work.

Both before and after the ceremony, Dr. Davan Wetton, the organist of the Institute, played some selections on the splendid organ in the large hall. On the following day, the annual conversazione was held, when the many workshops and laboratories were open to inspection, and various displays served to enliven the proceedings.



demand for the machine, and to unavoidable delay in executing the orders for tri-cars. The company have discontinued the manufacture of motor cycles, and, therefore, it has been necessary to write down the stock in hand, which partly accounts for the figure of loss.



PUBLICATIONS RECEIVED.

Motor Ignition Appliances. By T. H. Hawley. London: The Cycle Trade Publishing Co., Ltd., 19-21, Wilson Street, Finsbury. Price 2s. 6d. net. (post free 2s. 10d.).

Patent and Similar Protection for Inventions, Designs and Trade Marks. London: Gedge and Feeny, 60, Queen Victoria Street, E.C.

Napier Major, from Workshop to Olympia. London: S. F. Edge, Ltd., 14, New Burlington Street, W.

Catalogues.

Supplementary List of Novelties for 1906. The United Motor Industries, Limited, 45-46, Poland Street, W.

Rover Cars. The Rover Company, Limited, Coventry.

Lacre Industrial Vehicles. The Lacre Motor Car Company, Limited, 1-5, Poland Street, W.

Commercial Motor Vehicles. John I. Thornycroft and Co., Ltd., Chiswick.

Marine Motors. John I. Thornycroft and Co., Ltd., Chiswick.

Thornycroft Motor Launches. John I. Thornycroft and Co., Ltd., Chiswick.

James and Browne Motor Cars. James and Browne, 395, Oxford Street, W.

Melhuish's Tools and Machines for Workers in Metals. Messrs. Rd. Melhuish, Ltd., 84-87, Fetter Lane, E.C.

The "Orion" Commercial Motors. Moss and Woodd, Banister Road, Kensal Rise, W.

The Lanchester Motor Car. The Lanchester Motor Co., Ltd., Sparkbrook, Birmingham.

The "Grose" Original Non-Skidding and Puncture-Proof Bands.—Messrs. Grose, Ltd., Northampton.

Radiators and Bonnets. Messrs. Walsh, Nicholls and Co., Wolverhampton.

"Germain Standard" Motor Cars.—Theo. Masui, 1, Hanover Court, W.

Amongst other organisations which have been running public motor services in various parts of the country, is the Lake District Traffic Association. This Company, we learn, has had a most successful year, having paid a 12% dividend. We are pleased to reproduce above, photographs of some of their char-a-bancs which they have in regular service in Westmoreland. The vehicles are Thornycroft models; in the left photograph three of these char-a-bancs are waiting their turn for service in front of the Company's office, whilst in our right picture one of the vehicles is shown in front of the Lake Hotel, one of the points visited in connection with the Company's regular routes.

Dr. Warre, the late Headmaster of Eton, as we announced some little time ago, has been the recipient of a very delightful gift of appreciation from a number of old Etonians in the form of a British-built Rolls-Royce Car. This carriage has now been completed and is seen in our photograph above, it being convertible from an open phaeton, as shown, to a closed coupe.

Petrol and its Future.—Sir Marcus Samuel, Bart., chairman of the "Shell" Transport and Trading Company, Limited (one of the great oil-producing companies), when presiding at the company's meeting on Tuesday, made the following important statement in regard to the cost and supply of petroleum spirit:—

"The great expansion in the motor car traffic will, I am convinced, create a market for our product, and if the users of motor spirit will only be guided by experience, and refuse to listen to specious reasoning, they need have no fear whatever of any famine in petrol or undue rise in its price. We should strenuously oppose such, and will not enter into any combination having for its object the raising of the price of petrol to a prohibitive one. On the other hand, I am bound to say that the rates at which it has been sold up to the present have not been remunerative, and it would not do for promoters of automobile companies to base their calculations on prices ruling wholesale for the last few months, since these have been made unnecessarily low by competitors seeking to force a combination."

We beg to offer our congratulations to Lord Harmsworth on his elevation to the Peerage, one of the honours bestowed by the outgoing Unionist Government. The new Baron has been such a consistent and enthusiastic supporter of the automobile cause and the automobile, that all interested in the development of the movement will feel satisfaction at the honour that has been awarded to him. Among others closely associated with the movement who have been honoured by the King are, Sir H. de Stern (Baron), V. C. W. Cavendish and Lieut.-Col. Mark Lockwood (Privy Council), C. Morrison Bell and Francis Ley (Baronets), W. J. Bull and H. E. Moss (Knights), Sir E. J. Cassel (G.C.M.G.).

THERE is some evidence of a revulsion of feeling in magisterial circles in regard to police evidence, and the methods they have adopted in securing convictions against motorists. This was particularly evident in the instance that came before Mr. Plowden, on Saturday in last week, in which Mr. James Rosedale, of Bayswater, was summoned for driving a motor car at excessive speed. The speed alleged by the police was 25 miles an hour, and evidence was called for the defence to show that by the express directions given by Mr. Rosedale to the manufacturers, the machine could not have exceeded 20 miles an hour, as the gear with which it was provided would have rendered it impossible

for it to do so. Mr. E. H. Lancaster, Managing Director of the Clement Motor Company, Limited, gave evidence, and stated that the car mentioned (a 10-12-h.p. Clement), unless going down a very steep hill, could not possibly travel faster than 20 miles an hour. "As far as he could recollect," said Mr. Plowden, "this was the very first case of the kind in which the evidence of the police had been overwhelmed by the evidence for the defence (Mr. Plowden must have evidently been thinking of Metropolitan cases only, or else his memory must be a very short one), and," he continued, "that hitherto stop-watches had usually held the field, though he had often been told that these watches were very unreliable. He felt considerable sympathy with the wretched victims who had struggled in the meshes of this net, for he knew that they smarted under what they thought was a grievance.

At last, however, the long succession of easy victories scored by the police had been checked, for he had decided to dismiss the summons."

EVEN from Chertsey—a Bench which in the past has earned an unenviable reputation in regard to motor car cases—a similar somewhat notable dismissal of a case is recorded. It is specially noticeable because the summons was taken out by Inspector Jarrett, who is now at Egham, whither he was some time ago promoted, as our readers will remember, from the Ripley Road. The intended victim in this case was Mr. Thomas Wilson, chauffeur to Mr. John Kennedy, of Aldford Street, Park Lane, who was haled before the Bench on the usual charge of "unlawfully and recklessly or negligently, or at a speed or in a manner dangerous to the public, having regard to all the circumstances of the case." The Bench ordered the summons to be amended to one for reckless driving only (whether legally we are not quite sure). The driver saw no constable anywhere near the place at which the offence was alleged to be committed, and Mr. Nigel Kennedy, son of the owner, bore out the evidence to this extent, that he once heard a shout, and on looking back saw a constable some distance in the rear, but he did not associate the constable and the shout with one another. The result was that the case was dismissed.



The Dunlop Company's new security bolt (on the left) which they have constructed in such a way that it is no longer possible for it to cockle up under adverse treatment into such an invertebrate object as that which is illustrated next to it in the above photograph. The canvas tabs are now stiffened with a lining of rubber which prevents them from ever becoming limp, at the same time that it leaves them as flexible, for all practical purposes, as they were before.

The Basingstoke Canal.—Mr. William Carter, of Parkstone, who recently purchased the Woking, Aldershot, and Basingstoke Canal, has, it is now announced, throughout been acting in conjunction with the Joint Stock Trust and Finance Corporation, Limited, who are now the absolute owners of this waterway.

CONGRATULATIONS to Mr. J. C. Percy upon his being appointed, by their Excellencies the Lords Justices of Ireland, a Justice of the Peace for the Borough of Dublin. Mr. Percy's very wide circle of friends on this side of the Irish Channel will no doubt join us in our congratulations upon this appointment to so popular a personality in the automobile world.

NEAR the Sundial, Botanical Gardens, Sydney, New South Wales, is the delightful spot from which we have just received a hearty Christmas greeting from Arthur Ellerthorpe, a personality in the motor world who has been for the last month or two sadly missed at the many pleasant functions which have recently been held. Mr. Ellerthorpe's many friends will wish him a speedy return to London, restored entirely to health.

THE Automobile Club of Austria is arranging a great automobile exhibition to be held in the buildings of the Gartenbau-Gesellschaft, Park Ring, Vienna, from the 15th to the 28th of March next.

BRITISH EXPORTS AND IMPORTS OF MOTOR CARS, &c., FOR 1905.

NOTE.—For 1904 comparative figures see full table for the year in our issue for January 21st, page 91.

Imports.						
1905.	No. of Cars and Value.		Parts Value.	No. of Motor Cycles and Value.		Parts Value.
		£	£		£	£
January ...	362	149,578	36,608	57	1,842	905
February...	431	195,978	56,773	102	3,748	1,957
March ...	560	239,091	75,463	152	5,369	2,721
April ...	544	225,012	68,891	192	6,477	2,087
May ...	728	327,008	77,801	280	8,274	2,947
June ...	557	259,359	53,362	211	6,581	2,201
July ...	675	277,738	71,968	212	6,931	2,178
August ...	505	230,568	96,084	116	3,912	1,101
Sept. ...	399	160,318	96,651	73	2,586	457
Oct. ...	259	105,182	83,745	92	2,911	2,026
Nov. ...	359	174,470	100,730	101	3,507	2,237
Total ...	5,379	2,344,302	818,076	1,588	52,138	20,817

		Exports, British and Irish make.					Foreign and Colonial Re-exportation.						
1905.		No. of Cars and Value.		Parts Value.	No. of Motor Cycles and Value.		Parts Value.	No. of Cars and Value.		Parts Value.	No. of Cycles and Value.		Parts Value.
		£	£		£	£		£	£		£	£	
January	...	77	25,590	7,480	58	2,026	673	50	19,006	2,733	8	214	138
February	...	62	20,209	6,335	63	2,389	1,003	79	39,772	4,532	2	54	52
March	...	49	14,749	7,862	46	1,471	1,024	36	20,783	3,440	14	290	55
April	...	55	16,590	9,635	46	1,459	608	38	19,697	7,885	8	369	59
May	...	55	15,670	10,014	60	2,181	1,803	17	8,572	3,270	1	60	40
June	...	59	16,797	13,239	83	2,286	1,293	20	11,491	2,815	17	512	109
July	...	59	23,295	8,314	52	1,791	1,000	50	15,419	2,479	6	177	61
August	...	88	33,239	10,929	64	2,177	1,266	75	40,362	5,299	3	105	123
Sept.	...	129	47,110	6,507	52	1,796	1,304	58	29,686	2,169	2	110	80
Oct.	...	157	57,793	8,290	41	1,543	1,258	68	26,001	4,045	24	698	44
Nov.	...	173	60,434	16,127	55	1,922	2,019	51	17,529	3,383	7	209	278
Total	...	963	331,476	104,732	620	21,041	13,251	542	248,318	42,050	92	2,798	1,039

NEW ISSUES.

Argyll Motors (Limited).—The capital of this company is £500,000 in 350,000 ordinary shares of £1 each and 30,000 preference shares of £5 each, of which have been issued 250,000 ordinary shares of £1 and 20,000 preference shares of £5. The present issue consists of £100,000 4½ per cent. first mortgage debenture stock at par, and has been made owing to a further considerable extension of the company's works having become a matter of immediate and pressing necessity.

NEW COMPANIES REGISTERED.

Anciens Etablissements Panhard-Levassor (English Patents), (Limited).—Capital, £1,000 in £1 shares. Object, to acquire patents, &c., in connection with motor cars, &c.

Automobile Industries (Limited), Winchester House, Victoria Square, Birmingham.—Capital, £15,000 in £1 shares. Object, to adopt an agreement with J. Roche.

City and Suburban Motor Cab Company (Limited), 32, Old Jewry, E.C.—Capital, £100,000 in £1 shares. Object, to adopt an agreement with the Transit Syndicate, Limited, and also to enter into an agreement with MM. Georges Richard et Cie for the supply of "Unic" (petrol) cabs, to cost £284 each, fully equipped. First directors, Sir Henry Seton-Karr, C.M.G., M.P. (vice-chairman of the London Motor Omnibus Company, Limited), Colonel T. H. Anstey, G. C. Isaacs, J. O. Lawson-Johnston, J. C. Macdonald, M.P. (director of the Fire-Resisting Corporation, Limited), and C. Wyndham-Quin (director of the Motor Exchange of Great Britain, Limited).

Co-Operative Factors (Limited), 7, Sweeting Street, Liverpool.—Capital, £2,000 in £1 shares. Object, to carry on the business of manufacturers and factors of cycles, motors, aerial machines, &c.

Fife Submarine and Engineering Company (Limited), 100, Winchester House, Old Broad Street, E.C.—Capital £10,000 in £1 shares. Object, to acquire the benefit of certain existing inventions in relation to the storing of liquid and compressed air or gases, for motive-power engines, and re-condensation of the exhaust, and other inventions by C. W. Fife.

J. E. Hutton (Limited).—Capital, £40,000 in £1 shares (20,000 six per cent. preference). Object, to acquire the undertaking of J. E. Hutton, in connection with motors, motor cars. First directors, J. E. Hutton, J. A. Sirling, and L. C. Rawlence.

Kirsh and Co. (Limited), 22, Paper Street, E.C.—Capital, £3,000 in £1 shares (1,000 ten per cent. cumulative preference). Object, to take over the business of a manufacturer of motor and general clothing, carried on by Solomon Kirsh, at 22, Paper Street, E.C. First directors, R. Starke and S. Kirsh (managing directors for thirteen years).

Mercury Motor 'Bus Company (Limited), 69, Victoria Street, S.W.—Capital, £20,000 in 2,000 preference shares of £5 each and 10,000 ordinary shares of £1 each.

Motor Users Proprietary Company (Limited), 18, Fleet Street, E.C.—Registered with 1,000 members, each liable for £1 in the event of winding up. Object, to encourage and develop in Great Britain the automotor vehicle and allied industries, and to protect the interest of members.

National Radiator Company (Limited).—Capital, £50,000 in £10 shares.

F. Ostler and Co., Limited.—Capital, £2,000 in £1 shares. Object, to carry on the business of agents for motor cars.

COMMERCIAL POINTS.

A COMPANY has recently been formed, at Genoa, under the title of Fabbrica Ligure di Automobili, to build motor vehicles and motor boats under the patents and designs of John I. Thornycroft and Company, Limited, at special works being constructed at Spezia. This is a suitable place to carry on both the boat work and the motor work generally, there being a good supply of highly-trained mechanics as a consequence of the Italian Arsenal being situated there. The Chairman of the Company is Count Gamba, and the other members are influential people in Northern Italy.

MR. ARTHUR BROWN, of Luton, who had such a serious accident near Brighton in July last, is now, we are glad to learn, sufficiently well to again take an interest in motoring, and has ordered a 60-h.p. 6-cylinder Napier.

THE Earl of Crewe has given an order to Messrs. Charles Jarrott and Letts, Limited, for the building of a Crossley motor carriage. It will be fitted with a Limousine carriage body, which portion of the work has been placed in the hands of Messrs. Hooper and Company.

IN order to remove misconception regarding the Argyll agency in Plymouth and district, we are asked by Argyll Motors, Limited, to

state that their agents are Messrs. H. Andrew and Co., Athenæum Place, Plymouth.

THE annual fancy dress ball of the Coventry employees of Messrs. Humber, Limited, was held at the Coventry Assembly Rooms on Friday evening of last week. There were 260 dancers, and about 800 spectators. The ball was favoured by the presence of Mr. W. Phillips, the Coventry manager of Humber, Limited, and a number of the leading officials of the company, in addition to many visitors well known in the cycle trade. The whole affair was a most successful function, and served to demonstrate the unanimity and goodwill which exists in the Humber firm.

THE sole agency for the London district of the Hele-Shaw Patent Clutch Company has, we learn, been placed in the hands of Messrs. Gauthier and Company, of 60, Great Marlborough Street, W.

A CABLEGRAM to hand announces, we are informed, conspicuous victories for Dunlop motor tyres in the important annual motor car event between Melbourne and Sydney. The course is a difficult and trying one, involving a considerable strain upon cars. Of the sixteen cars which reached Sydney thirteen were shod with Dunlop tyres. A further run of 700 miles resulted in five cars tying, four of these being fitted with Dunlop tyres.

BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

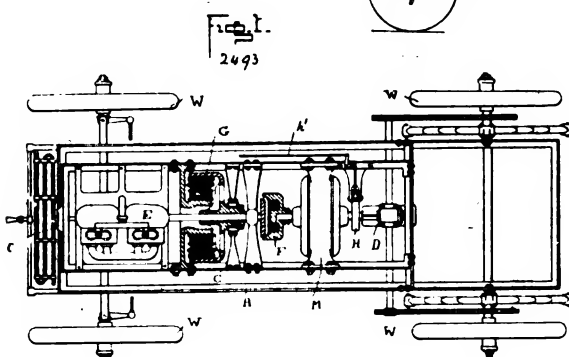
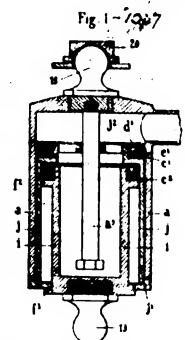
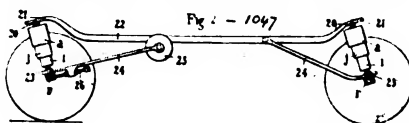
The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

2493. 7th February, 1905. Improvements in Self-propelled Vehicles. Albert G. Davis, Schenectady, State of New York, U.S.A. Date under International Convention, 8th February, 1904. In this invention, a prime mover, such as a gasoline engine with an electric generator driven thereby, is employed, thus obtaining the convenience and flexibility of electric drive and eliminating the necessity of using speed-changing gears. One feature of the invention consists in the arrangement of the motor driven by the generator and its circuits, whereby operation at a number of speeds and gradual variation of speed and torque may be readily and efficiently obtained with a single motor. There are four figures. Fig. 1 shows a plan view of an automobile with the car body removed. A is the main frame of the automobile, upon which is supported the car body and to which is secured in the usual manner the bearings for the wheels, W. C is an auxiliary frame upon which are mounted the motive parts of the machine, and which is supported from the main frame, A, by a three-point suspension. The frame, C, may be secured at one end to the frame, A, by bolts and at the other end may be supported from frame, A, by a hook or nose, or by any other form of single point suspension. The three point suspen-

sion, F, is carried by the engine shaft. With this arrangement the motor may be driven by the generator for the lower speeds, and when full speed is reached the motor shaft may be clutched to the engine shaft and the motor circuit opened, thus saving all losses in the motor. The rear end of the motor shaft drives the differential gears, D, which are connected through sprocket chains to the wheels in the usual manner. The arrangement of engine, generator and motor in alignment and supported from a single frame forms a compact unit of the active parts, enables the engine shaft to be clutched directly to the differential gears without transmission losses and ensures the maintenance at all times of the proper relations between the motive parts. H is a band brake, which may be of any well-known type, and which is operated through a bell-crank and through the rod, A¹, by the brake pedal. — November 22nd, 1905.

1047. 19th January, 1905. Improved Apparatus for Deadening Mechanical Shocks Experienced by Moving Vehicles. Pierre Robin, 71, Rue de Pro-

press upon the leather. Within the piston, *i*, is a second piston, *j*; the joint between this piston, *i*, and the interior cylindrical wall of the piston, *j*, is made by means of a leather cup-ring, *c*¹, secured in the same way as the cup-ring, *c*², secured in the piston, *i*, is limited in both directions by flanges, *j*¹, *j*², abutting against the end plate or cover, *j*³, secured to the piston, *j*. The stroke of the piston, *j*, is limited in one direction by the cover, *j*³, which abuts against the barrel of the cylinder, *a*, and in the other direction by the head of a rod, *a*¹, secured to one of the end plates of the cylinder, *a*, and engaging with the end plate, *j*³, formed with or attached to the piston, *j*. This end plate, *j*³, is provided with orifices, *j*⁴, for the admission of compressed air supplied through the pipe, *a*², from the air reservoir. The end plate of the cylinder, *a*, and one of the bases of the ball and socket joints, 18, 19, serve for mounting the improved apparatus on the vehicle frame. The improved apparatus can be interposed between the wheels and the frame sockets, 20, carried by lugs, 21, made in one with the frame, 22, and the balls, 19, are articulated in the sockets, 20, and the connecting-rods, 24, which are secured at one end to axles, *r*, and are articulated at the other end to the frame. The rods, 24, connect the axles, *r*, with the vehicle frame while allowing them as much play as the elasticity of the apparatus permits. Further, by placing the joints of the connecting-rods of the rear wheels on the axle or shaft of the chain pinions, 25, the distance between the pinions, 25, and the pinions keyed upon the rear axle, and also the tension of the chain will remain constant. The tension can be adjusted by means of screws, 26. — November 22nd, 1905.



sion of auxiliary frame, C, from frame, A, ensures that any strain or bending of frame, A, due to rough or uneven roads will not be transmitted to the auxiliary frame, C, and to the motive parts carried thereby. Supported from frame, C, is the prime mover, E, a gasoline engine. Mounted on the shaft of the prime mover, E, is the revolving part or armature of the generator, G, the stationary part of field of which is secured to frame, C. The armature is placed outside of the field in order that the proportionate weight and the radius of gyration may be increased so that it may act as a fly-wheel for the engine, E. Also secured to frame, C, is the motor, M, which is placed with the shaft in line with the engine shaft, and which carries at one end of its shaft one member of the clutch, F. The other member of the clutch,

ence, Paris, France. This invention relates to an improved apparatus for deadening mechanical shocks, such as those to which the wheels of moving vehicles are subjected, by substituting pneumatic springs for the metal springs usually employed. There are seven figures. Fig. 1, is a central section of the pneumatic spring, and Fig. 2, is an elevation of the frame and wheel. The apparatus comprises a cylinder, *a*, in which moves a piston, *j*. The joint between this piston and the body of the cylinder is made by means of a leather cup-ring, *c*¹, secured upon the piston by a washer, *d*¹, screwed on the piston, *j*. To ensure the contact of the leather cup-ring with the cylinder, *a*, a crown, *e*¹, is interposed between the washer, *d*¹, and the leather. This crown is provided with teeth which act as a spring and

Patent Specifications Published.

Applied for in 1904.

Published December 7th, 1905.

- 22,257. F. MITCHELL. Variable speed gearing.
- 24,676. S. DIAMANT. Speed-gear.
- 24,868. J. D. ROOTS. Intl. combn. engines.
- 25,461. SIR J. W. OTTLEY AND A. W. BRIGHTMORE. Intl. combn. engines.
- 25,368. H. F. FROST. Apparatus for vulcanizing tyre covers.
- 26,415. J. H. COLLIE. Speed indicating apparatus.
- 26,628. A. J. ROWLEDGE. Intl. combn. motors.
- 27,387. A. STONE. Variable speed gearing for motor cycles.
- 28,157. G. A. UNTERBERG. Magneto ignition.

Applied for in 1905.

Published December 7th, 1905.

- 2,493. A. G. DAVIS. Self-propelled vehicles.
- 3,172. J. A. ALBISTON AND W. LOBECK. Non-skidding device.
- 4,233. F. MILLINGTON AND A. H. MILLER. Electric ignition devices.
- 5,133. J. R. HIRST AND OTHERS. Driving gear.
- 5,325. R. E. MILLINGHAM. Exhaust reliefs or cut-outs.
- 6,859. S. BRAMLEY-MOORE. Change-speed gear.
- 10,311. A. CLEMENT. Carburetors.
- 10,789. E. VOGEL. Intl. combn. motors.

THE AUTOMOTOR JOURNAL

A RECORD AND REVIEW OF APPLIED AUTOMATIC LOCOMOTION.

Circulates amongst Makers and Users of Motor Cars, Cycles, etc., in the United Kingdom, the Colonies, and the Continent.

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THE PARIS SALON.—A general view of the centre of the main Exhibition Building. From this picture only a faint idea can be gathered of the elaborate character of the many splendid erections which various firms construct as a "frame" to their motor car exhibits.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1906.	
Jan. 15	... "Indicated and Horse Power of Motors," by Prof. Archibald Barr, D.Sc. (Scottish A.C.).
Jan. 15-20	... Brighton Automobile Exhibition.
Jan. 17	... Auto-Cycle Club Dinner.
Jan. 19-27	... Birmingham Motor Show.
Jan. 20	... Auto-Cycle Club Quarterly Trial.
Jan. 26-Feb. 3	... Crystal Palace Motor Show.
Jan. 26-Feb. 3	... Edinburgh Show.
Jan. 27	... Tri-Car Hill-Climb, Lewisham A.C.
Feb. 15	... *4,000 Miles Tyre Trials.
Feb. 15	... *Lamp Trials.
Feb. 9-17	... Liverpool Motor Show.
Feb. 9-17	... Newcastle Motor Show.
Feb. 19	... Scottish A.C. (Western) Annual Dinner.
Feb. 23-Mar. 3	... Manchester Motor Show.
March 9-17	... Glasgow Motor Car Show.
March 24-31	... Cordingley and Co.'s Motor Show.
June 30	... Ranelagh Automobile Gymkhana (Ladies' A.C.).
Aug.	... *Van Trials.

Foreign Events (Trials, Races, &c.).

1905.	
Dec. 31	... Coupe de Salon, Paris (Motor Boats).
1906.	
Jan. 13-20	... Brussels Exhibition.
Jan. 13-20	... American A.C. Show, New York.
Jan. 17-20	... Western Indian Trials.
Jan. 22-27	... Ormond-Daytona Beach Races.
Jan. 26-30	... Calcutta Motor Trials.
Feb. 3-18	... Berlin Motor Show.
Feb. 3-18	... Turin Automobile Show.
March 15-18	... Vienna Motor Exhibition (A.C. of Austria).
April 1-15	... Monaco Motor Boat Exhibition and Races.
April-May	... Milan Exhibition.
April	... Paris Voiturettes Trial (<i>L'Auto</i>).
May 6	... "Targa" Florio (Sicily).
May 13-14	... Tour de France (Motor Cycles and Voiturettes).
June 10-16	... Herkomer Cup.
June 28-29	... Kiel Motor Boat Races.
June 29	... Motor Bicycle International Cup Race (Austria).
Sept. 10	... Florio Cup Race (Italy).
Sept. 15-16	... Mont Ventoux Hill-Climb.

* Automobile Club of Great Britain and Ireland Events and Papers.

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The Empire Spring Wheel.	

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PASSING EVENTS.

The Election Question.

THE letter of Lord Harmsworth to the Press, to which we referred last week, and in which he recommended to automobilists that they should, as a matter of principle, refrain from supplying any motor cars at the impending General Election for the support of any candidate who does not pledge himself to progressive legislation on the motor car question, is bearing fruit in the form of a very voluminous and very lively correspondence. It is satisfactory to find that Lord Harmsworth's proposal is securing as we hoped it would do, the support and adherence of the great majority of motorists. The whole question was considered in detail this week, at a meeting of the provincial delegates of the Automobile Club and a committee of the Motor Union, when a regular plan of campaign, with a view to the approaching Election, was discussed and arranged for. The Motor Union at present suggests putting certain definite questions to intending candidates, with a view of ascertaining their position on the automobile question. The questions are as follows:—

1. When the Motor Car Act of 1903 comes before Parliament for renewal, will you vote for:—
 - (a) The abolition of all artificial speed limits, as such limits are calculated to relieve drivers of their responsibility to drive at all times and under all conditions with caution and consideration?
 - (b) An amendment providing that the endorsement of licences shall be confined to serious offences, and be within the discretion of the magistrates?
2. Will you support a measure requiring the universal lighting of all vehicles after dark, so that they show a white light in the direction in which they are travelling, and a red light in the contrary direction.
3. Will you support a Bill giving effect to the principal recommendations of the Departmental Committee on Highways, and establishing a central authority to advise and assist the local road authorities?

Possibly Too Elaborate.

OF course we approve of all these things. We would like to see every Member of the House of Commons pledged up to the eyes to support them. But we think that in asking candidates for Parliamentary honours to pledge themselves to the whole three, the Motor Union is asking just a little too much of human nature. There is no advantage in this world in asking more than a certain excess over and above what you are likely to get, and there is many a prospective Member of Parliament who might be quite willing to vote for the abolition of the speed limit and to support the general progress of the automobile movement without necessarily seeing his way to pledge himself to the sweeping reform of our highways administration. If we can get Members to support that proposal so much the better. If we can induce them to favour a universal Lighting Bill, so much the better also, and if we can enlist their sympathies in favour of the repeal of the absurd provisions about endorsing licences, that also will be an advantage. But the main thing, after all, is the abolition of the arbitrary speed-limit. If candidates pronounce themselves in favour of that, and give a general assurance that they will promote the interests of the movement, that, we think, ought to be sufficient, and if we have evidence of the pledge having been given, it should be all that we need from a Parliamentary point of view also.

The Paris Salon Second in the Field.

THE wisdom of the Society of Motor Manufacturers and Traders in holding the great English Exhibition in November of this year, was plain enough to all who visited it, even before the Paris Salon opened its doors. But if there were any lingering doubters on the subject, their doubts would certainly have been removed by a visit to the great French Exhibition. It was not that the French Salon was less gorgeous or less representative of the year's French industry than before. As our readers will have gathered from the impressions we published of it last week, it was not only equal but superior in all these respects to its predecessors. The progress marked was as great, the exhibits themselves as interesting, and the decorations and illuminations, always tasteful, were even more elaborate, more artistic, and more effective than ever. But it was not the show of the year, and its importance for one great army of purchasers, the purchasers whom the French themselves recognise as their most important customers, was accordingly seriously handicapped. There has been nothing like the same attendance of British visitors as on previous occasions. Even those who are pre-eminently enthusiastic about Continental cars had had their opportunity at Olympia of seeing and examining the best French models and doing business, where they desired to do so, with the English agents of all the great foreign firms, who were there represented, while the benefit to the English manufacturer of being first in the field on the 1906 market was most pronounced. If any further evidence were needed, it is provided by the conversion to this view of Mr. Charles Jarrott, whose letter on the subject we publish in our correspondence columns. He, it will be recollected, was not in accord with holding the English show in November. He now reads his recantation. He has completely changed his view, and no better evidence of the wisdom of holding the Olympia Exhibition at the time it was held need be asked for.

Motor Volunteers in 1905.

THE official Report of the activities of the Automobile Volunteer Corps during the past year, will be pleasant reading for everyone who desires to see the application of the automobile to military purposes extending, as it should do, and becoming a real source of strength to the national defence. The membership of the corps has gone up till it now stands at 159 active members of all ranks, and during the past year the members of the corps have performed duties on 124 occasions. They gave a specially good account of themselves at the great review held in honour of the King of Spain at Aldershot, where a strong detachment was specially ordered by His Majesty King Edward to be present. The corps has carried out in the most efficient manner all the duties which military automobilists can be required to discharge, including not only reviews, but staff tours, signalling operations over long distances, and the maintenance of communication, supervision and inspection during manoeuvres. The record is a highly creditable one, and the officers of the corps are to be thoroughly congratulated on it. There should be no doubt now that the corps will advance from year to year both in numbers and in ability to be of assistance in the defence of the country if any occasion for their services, in grim earnest, should ever arise.

The Road Makers.

If we ever ultimately succeed in attaining in this country an adequate system of carefully managed, properly surfaced, adequately repaired, and centrally controlled roads, the moving spirits of the Roads Improvement Association will certainly deserve canonisation as the patron saints of the new and improved highways. Whenever an opportunity has presented itself of advocating any proposals by which the road administration of the country could be benefited, the association, guided by Mr. Rees Jeffreys, the energetic hon. secretary, has always been prominent with practical and useful suggestions, and now puts forward a particularly sensible and appropriate one in a letter (signed by Earl Cadogan, the Hon. A. Stanley, the president and vice-president of the association respectively, and Mr. Rees Jeffreys), which we publish this week in our correspondence columns, pointing out that in the roads of the United Kingdom we have a sphere pre-eminently adapted for useful work by the unemployed. It is a class of work in which unemployed labour would result in a benefit to the community, instead of partaking of the perfectly useless character it has usually been in the past, and it would not have the objection, to any serious extent, of competing with the employment of those already occupied.

There is a large and growing fund at present available for the relief of the unemployed. No one suggests that it should be handed to them in mere doles for doing nothing. That would merely mean pauperisation on a colossal scale, and the most deserving of the unemployed would be the first to resent anything of the sort. In general, the planning of relief works is not easy, but here is a style of work in which unskilled labour can be really made effective, and in which, indeed, at present nothing but unskilled labour is employed. Every new road made, every hill, the gradients of which are rendered more negotiable, and every badly made-up road which is given a good surface, is a gain to the community. Here, obviously, is the proper field for relief works, and the Roads Association are doing a public service in drawing attention to it.

The Sinews of War.

THE Motor Union draw attention to the fact that their war chest is not nearly so well supplied with funds as the exigencies of the movement at the present moment render desirable. Up to date the sum of £1,150 has been contributed towards the Legal and Legislative Defence Fund of the Union. Of this amount £750 has been already expended in such useful objects as giving special grants to members to assist them in the defence of cases of special importance to automobilists generally; in collecting evidence to put before the Royal Commission on the Motor Car Acts; in prosecuting offenders on the highways, and in opposing unjustifiable applications by local bodies for the imposition of the 10-mile speed limit. The Motor Union Defence Fund, therefore, at the present moment, only possesses a balance of some £400. It is true, of course, that an unusual demand was made on the Union's exchequer by the Legislation Fund of the Joint Committee, to which the Union contributed £500 of the £750 referred to above to enable a satisfactory case from the automobile point of view to be placed before the Royal Commission on the Motor Car Acts. In this respect the Union has done good service. But it is unnecessary to point out that this balance of £400 is quite inadequate for the

requirements and duties which the Union is called upon to discharge. A single important case which the Union might happen to feel it advisable to support might sweep it all away. In fact, automobilists generally cannot feel satisfied that they have in the Motor Union a force behind them whose backing is likely to be really useful unless the reserve fund the Union possesses for such purposes as resisting unjustifiable prosecutions runs into thousands at least. All members of the Union, therefore, and all automobilists, whether members of the Union or not, will be consulting their own interests and the interests of the movement by bearing this condition of affairs in mind, and as the season is now approaching when everybody takes a special pleasure in putting his hand into his pocket, it is to be hoped that the funds of the Union will be largely augmented, and that the first months of the new year may see a satisfactory reserve (which is but too likely to be needed during the ensuing summer) at the Union's disposal.



The Perjury Hunt.—The astonishing and ludicrous features of the "Guildford Perjury Hunt," with which we dealt at length editorially and otherwise in our last number, excited our indignation to such an extent that we omitted to do full justice to those who were largely instrumental in the satisfactory outcome of the proceedings. Mr. Gill we indeed mentioned, but we should have further noted that he was assisted in the skilful defence by Earl Russell and Mr. E. Cockle. Mr. Guy Lushington, who appeared for the Treasury, conducted the prosecution with strict fairness—a fairness which was in marked contrast to the extraordinary prejudice displayed by the judge, who, as our readers will have gathered, appeared to act not only as judge, but as "prosecution counsel" as well.

Driving and Proficiency Certificates.—The last of a series of provincial examinations by the A.C.G.B.I. for the present year was held at Lincoln, Northampton, Bury St. Edmunds and Norwich at the beginning of the month.

As a result of these examinations ten candidates were granted driving certificates, and seven mechanical proficiency certificates. The candidates come from very various ranks in life, and include such different callings as grooms, draymen, ships' stokers, clerks, and labourers. It is obvious that the unemployed (with intelligence) are finding out that motor car driving provides them with an opportunity.

The club's scheme of holding the examinations has been of great educational value to paid drivers. It was thought by some that the questions asked in the written paper forming part of the examination for the driving certificate were too difficult for the candidates. It has, however, been found that the necessary knowledge was easily acquired by little more than a superficial reading of the Motor Car Act, 1903, and the L.G.B. Regulations, 1904, in regard thereto. The progress in this particular part of the examination is shown by the following facts:—

In the London examinations it was found that in the first two, 40 per cent. of the candidates succeeded in obtaining the qualifying percentage, but the percentage in those held after increased to nearly 70 per cent., while in the provincial examinations the percentage has been even better, viz. 80 per cent.

THE BIG FRENCH RACE FOR 1906—WHICH COURSE ?

F

AMONGST the numerous circuits proposed over which to hold this big race about July next year, that starting from Fontainebleau is receiving an enormous amount of support from those organising the race. Its close proximity to Paris (about 50 kilometres) is naturally one of its most important attractions, and provided the report of the Commission, which is now studying the circuit, is in any way favourable, every effort will be made to endeavour to induce the French Government to sanction the holding of the race in this district. Seen on the map, the route, which measures 85 kiloms., hardly looks a promising

one, comprising as it does three circuits converging at Fontainebleau, two of which are of comparatively fair size, and one very small triangle. Starting from Fontainebleau, the present circuit is to Melun, Pringy, Chailly, Fontainebleau (end of first circuit), Arbonne, Acheres, Ury, Fontainebleau (end of second circuit), la Croix-Saint-Herem, la Croix-Montmorin, Fontainebleau (end of third circuit). We are able this week to give some photographs of some features of this proposed three-circuit course, which, if selected, would have to be covered many times—without any neutralised sections of any sort.

FRENCH 1906 RACE.—The Fontainebleau Circuit. An acute turning at Pringy.

SPEED LIMITS IN 1916.

"ACCORDING TO COPPER."

At Downshire County Bench, before Mr. Alderman Sideslip, the Reverend Mr. Chadband, and the Lord Nozoo, Captain Blank was summoned for that he did feloniously exceed the legal limit of speed laid down in the Act of Parliament, Edv. VII., Sec. 302, Fugere 1, Opus 8, when hunting with the Downshire foxhounds.

Inspector Hedgehog deposed that at noon on the 18th inst. he timed defendant over a measured distance on Muggs Farm between the mud-heap and the second ditch. Defendant was riding a powerful bay, with a white stocking and a bad temper. He timed defendant on a signal from Sergeant Slop, who was disguised as a gentleman and hiding behind the mud-heap. The horse covered the distance in forty-nine seconds, equivalent to twelve miles and three yards an hour, while the maximum speed allowed is twelve miles.

Cross-examined by Counsel for Defendant: There was no one else on the horse; there was traffic on the road. Pressed on this point witness admitted that all he meant was that a steam-roller was at work half a mile away.

Counsel for Defendant: Is it not a fact that while all your police were timing the hunt, information reached you to the effect that a woman was being beaten into unconsciousness in Lobham Village, and that you refused to leave your work?

Inspector Hedgehog appealed to the Bench, who ruled the question out of order.

Counsel for Defendant: But is it true?—Inspector Hedgehog: Yes.

Captain Blank went into the witness-box and swore that it was impossible for the horse to have covered the distance in the time, because he was not hunting at all on that day owing to a severe cold.

Fifteen witnesses corroborated defendant's testimony.

The chairman said that the evidence implied that the inspector had made a mistake, which was impossible.

Fined five pounds and costs or fourteen days.

Mary Jane McCarthy, nursemaid, was summoned for exceeding the legal limit while wheeling a bassinet in Durbiton High Street, on the 19th inst.

Inspector Hedgehog said this was a most serious case. On Saturday morning, the 19th, he set a police trap between the "Blue Bore" and the chemist's shop. He timed defendant with his four-and-elevenpenny stop-watch, and found that she covered the distance by at least four-fifths of a second in advance of the time allowed by law. P.C. Short then came out of the "Blue Bore" and arrested her.

Defendant: Did not you call out "Whoa, Beauty?"—P.C. Short: Yes.

Defendant: And I smacked your face.—P.C. Short: You did. (*Sensation.*)

Miss McCarthy, who defended herself (uncommonly well), stated that it was impossible for her to have walked so fast, because there was a hat-shop in the measured distance. She also spoke to a soldier.

The Chairman warned witness to be careful.

Defendant's mistress gave evidence, and swore that Mary Jane had never been known to do anything quickly in her life.

The Bench said the law must be obeyed.—Fined 40s. and costs or a month's notice.

Simpson Clarke, bachelor, aged four years, was summoned for riding his bicycle-horse down his father's garden path at a furious rate, further for not having the identification number properly displayed, and refusing to show his licence when called upon to do so.

Defendant was represented by his mother.

Inspector Hedgehog deposed that on Saturday afternoon, the 19th inst., he took up a position in the next garden and timed defendant over a measured distance between the dog-kennel and the third croquet-hoop. (*The Ordnance Survey Map—specially enlarged to cabinet size—was produced for the guidance of the Bench.*) It was impossible to see the number on the horse. When arrested and ordered to show his licence, defendant cried, whereupon defendant's bulldog ran out, bit witness in the leg, and harried him out of the gate. (*Applause in Court, which was immediately cleared.*)

By the Chairman: Was there any traffic on the path?—Yes, a worm, which only escaped being run over by the skin of his teeth.

The Chairman: Is the worm present in Court?

Mrs. Simpson Clarke (looking hard at the Inspector): I can see *one* worm.

Cross-examined by Mrs. S. C.: Witness admitted that the identification number was fixed on the horse, but defendant's pinafore covered it, and this constituted an offence under the Act.

Mrs. S. C.: Why were you not out trapping motorists?—Inspector Hedgehog: The A.A. patrols were on duty.

Mrs. S. C.: Is it not a fact that you have what is called "got up" this case against my baby?—The Inspector refused to answer.

Mrs. S. C.: Didn't you come trying to court our cook while all the time you have a wife and five children?

Inspector Hedgehog appealed to the Bench, and the Chairman woke up.

The Bench decided that witness must reply.

Inspector Hedgehog then admitted that this was so, but mentioned in extenuation that two of his children were married.

Defendant's mother then addressed the Court.

She said: "I have brought my purse with me because I know that justice is an unknown quantity at this Court, but I am going straight to call upon your wives, and tell them the truth about this matter." (*Sensation.*)

The Bench consulted in private (and in trepidation), and, on returning, the Chairman said:—

"The Court is of opinion that although and notwithstanding the fact that Defendant is guilty of a grave breach of the Law in having allowed and permitted the number of his bicycle-horse to be covered by his "pinny," and that whereas nevertheless an endorsement on Defendant's licence might, could, and most probably would, prejudice his career at the kindergarten, it is consequently and indisputably a case in which the glorious mercy of the English Law may be invoked, the Court will, therefore, take advantage of the Summary Jurisdiction Act of A.D. 407, and the summonses are dismissed.

S. C.

HIGH-TENSION MAGNETO IGNITION.—PART XX.

THE LACOSTE SYSTEM—(continued).

The Condenser.

ON account of the fact that the distributor-spindle, D^6 , passes from end to end between the magnet limbs, it has been necessary to make the condenser, F , of somewhat unusual shape in order to accommodate it above the

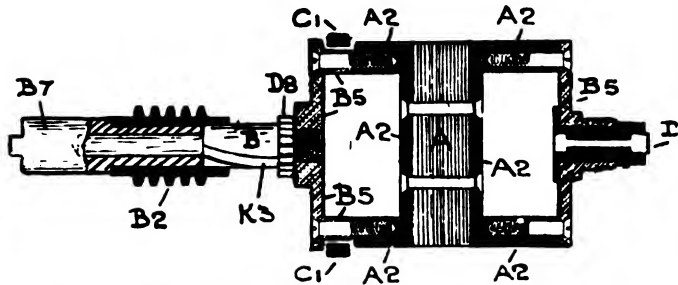


FIG. 4.—The Lacoste High-Tension Magneto. Sectional drawing showing the construction of the Armature, which has flanged brass Side Plates, A^2 , riveted to the laminated core. The End Plates, B^2 , are attached to the side plates by screws in the usual way.

armature, where it has now become general practice to place it. Constructed in an annular form, the Lacoste condenser is threaded over a sleeve surrounding the spindle, D^6 , and it is thus supported without any other attachment. Unlike most condensers placed in this position, this has no metal case, being merely covered on the outside by insulating tape. It must be re-

The High-Tension Gear.

All the high-tension connections are made at the opposite end of the armature to those of the low-tension circuit, and they are thus quite isolated from it. The collector contact, D^2 , the feeder contact, D^2 , and distributor contacts, D^3 , are all embedded in solid insulating material which is cast into the aluminium case, D^{10} . The spring contact, D^2 , which presses against the live end of the secondary winding, D^1 , conveys the current to the feeder contact, D^3 , through a metal bar also embedded in the insulator, and from the contact, D^3 , it is distributed by the revolving brush, D^4 , to each of the contacts, D^3 , in turn. These are connected to their respective terminals in the plug-board, D^{11} , from which wires are led to the engine.

The revolving member of the distributor is mounted on the spindle, D^6 , which is carried on ball-bearings, and is driven by a train of gear wheels, D^7 , D^8 , and D^{16} , from the other end of the armature spindle. In this, the Lacoste magneto follows usual practice, but it will be noticed that a compound idle wheel, D^{16} , has been introduced between the wheels, D^7 , and D^8 , in order to reduce their diameters. This idle wheel is also mounted on ball-bearings.

Timing the Ignition.

In general principles the timing gear on the Lacoste magneto resembles the mechanism which we have already described as being fitted to the Eisemann magneto. Its object is to rock the armature relatively to the shaft which drives it, and by so doing to alter the

FIG. 5.—The Lacoste High-Tension Magneto. Views of the Bearing Plate, M , which carries the gear wheels for driving the Distributor Shaft, and also of the Armature in place between the magnets. This latter view clearly shows the arrangement of the two Brushes (one carbon and one copper), C^4 , used for collecting the Low-Tension current from the Armature.

membered, however, that it is still well protected, because of the enclosed nature of the machine as a whole. The live side is connected direct to the brushes, C^4 , and the other side is earthed in the usual way, so that the condenser is "shunted" across the contact-breaker.

instant at which it reaches the "maximum" position relatively to the engine crank-shaft. In this machine, however, it is the coupling-sleeve itself which is moved to and fro instead of a sliding key as is the case in the Eisemann system. Spiral grooves, K^3 , are cut in both the armature spindle, B , and also in the engine-driven

spindle, B^1 , and internal keys on the sleeve, B^2 , couple these two members together, and at the same time allow the one to drive the other. On the outside surface of the sleeve, B^2 , are several peripheral teeth (not a thread), which engage with a toothed quadrant, K^1 . This quadrant is operated through the timing-lever, K , by moving which the sleeve, B^2 , can be slid backwards or forwards, so that the wedge-like action of its internal pins, engaging in the spiral slots, causes the armature and its driving-shaft, B^1 , to assume different relative positions. In this way the ignition can be advanced or retarded as required.

Owing to the opposite directions of the spiral slots in

FIG. 7.—The Lacoste High-Tension Magneto. Views of the Bearing Plate, M^1 , which carries the High-Tension gear, and of the Casing, D^{10} , which carries the High-Tension contacts embedded in solid insulating material. The Case, D^{10} , is of course attached, by screws, to the Plate, M^1 .

the two members, the sleeve, B^2 , is in equilibrium so far as any longitudinal forces are concerned, and there is, therefore, no strain on the connections and no difficulty in moving the sleeve in either direction while the machine is in use.

This timing-gear, which is entirely enclosed in an aluminium case, is well illustrated by Fig. 8

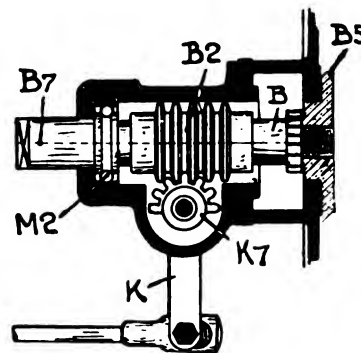


FIG. 8.—The Lacoste High-Tension Magneto. Sectional drawing, showing the "Timing" gear, by which the Armature is rocked over relatively to the shaft, B^1 , which is coupled to the engine.

FIG. 6.—The Lacoste High-Tension Magneto. View of the Bearing Plate, M , showing the Low-Tension gear, which is mounted about the half-speed distributor shaft. The Cam, B^4 , has, therefore, four projections instead of two.

where it will be noticed that the armature spindle passes through the spindle, B^1 , which is thus self-aligning. The same illustration shows the ball-bearing, M^2 , by which both these shafts are supported.

(To be concluded.)

American Tramways.—We have to thank the London County Council for a very interesting report by their Chief Officer on Tramways, Mr. A. L. C. Fell, on the results of his visit to America to examine the methods of tramway propulsion and organisation in use in the United States. The report is, of course, more of interest to the

electrician than the automobile engineer, but the fact should be noted that Mr. Fell reports that on several lines, in outlying districts of course, where, needless to say, there is much less traffic on the roads than in the United Kingdom, speeds of 50 miles an hour on tramways along the sides of the roads are not at all infrequent.

PARIS SALON 1905.

(Continued.)

Six-cylinder Cars and Racing Cars.

ON one other point, too, this year's Salon is disappointing, there are practically no 6-cylinder cars—the Napier, the Louet and Badin, and the Cottureau being the only examples which have come before our notice—and of these the Cottureau engine is on a racing car and the Louet and Badin on a vehicle which looks somewhat unsuitable for general use—although the only model exhibited was conspicuous for its signs of travel.

There are, however, quite a number of racing cars exhibited in places of honour on their respective stands, among them being Théry's Richard-Brasier, which won the last Gordon-Bennett, the 100-h.p. Itala, which secured the Florio Cup, and the Mors, which carried off the

sound touring vehicles. Among such cars may be included the well-known Chenard and Walcker chassis, which has the rear wheels driven by internal spur gearing. Similar in principle, although somewhat different in detail of arrangement, is the C.I.E.M. car, which was introduced last year. On this latter model, it will be remembered, a special feature was made of the great accessibility of the various parts of the engine. Another car, employing a stationary axle in conjunction with another live shaft for driving the wheels, is the Aries, but in this the wheels are driven direct, and the arrangement is chiefly adopted in order to facilitate the splaying of the rear wheels—a feature on this car as well as on the De Salvert already referred to. Then, of course,

THE PARIS SALON.—Main entrance to the Grand Palais in Avenue Nicholas II. At night the view from the steps of the Petit Palais—from which this photograph was taken—is hardly to be surpassed in brilliance or effect. Under the roof of the colonnade, on one side of the main entrance, are powerful but invisible electric lights which illuminate the frescos, and these, forming distant pictures among the statuary and myriads of coloured lights, add greatly to the general decoration in which the central figure is the stately Grand Palais itself, with its glass roof glowing against the dark sky. Dense crowds entering and leaving the Salon, and a ceaseless stream of vehicular traffic of every description, give the necessary air of life en fête to this imposing scene.

Coupe Rothschild. In addition to these, there is the Rochet-Schneider car, which figured at the Brighton meeting, the Cottureau racer, previously mentioned, and another less powerful machine on the Brouhot stall. Messrs. Mendelssohn exhibit a racing voiturette of 55-h.p., which weighs only 380 kilogs. On this machine, there is practically nothing but the engine and the four wheels, and even the differential itself on the live axle is exposed—a more dangerous-looking machine we have seldom seen exhibited anywhere.

Unorthodox Cars.

Although this year has brought out remarkably few unorthodox cars there are, nevertheless, quite a number of these on the market, and several of them have established a very enviable reputation for themselves as

there is the famous De Dion, which is so well known that its peculiar rear axle arrangement has long ceased to be a matter for comment. Among special change-speed-gears there is the Pilain, which has every speed a direct drive, and obtains this by a series of three different-sized bevel wheels on the rear axle. These permanently mesh with their respective pinions, which are solid with the propeller-shaft, and the speeds are obtained by locking either one of the bevel-wheels to the live-axle. On the Henriot car, the gear itself is not peculiar, but the gear-box is formed as part of the back-axle casing, while on the Motobloc chassis it is combined with the crank-chamber. In the gear-box on the Cornilleau and Sainte Beuve chassis, the gears are arranged on the Mercedes principle, but with this difference, that the sliding sleeves are free on their own shafts

THE PARIS SALON.—View of an automatic tyre pump fitted to a Bollée Chassis. The pump cylinder, A, is formed with a crank-chamber, A', containing a gear-wheel which meshes with a pinion on the main-shaft, just in front of the gear-box. In the photograph the flexible tube, A'', is shown connected to the pump ready for inflating the tyre.

until after the wheels are partly in mesh, when the final movement locks them in place by a loose jaw coupling. The idea is, of course, to simplify the action of changing speed by reducing to a minimum the weight of one revolving part. Last year the engine on this car had some peculiar features, but these have now been modified and others added. All the valves and igniters are operated by the same cam-shaft and the rods are enclosed behind inspection-covers. The igniters, too, are very peculiar, for the vertical rod itself passes into the inlet-valve-chamber, and terminates in a large scythe-shaped contact-arm, which passes all round the valve to reach the "live" contact. This arm lies horizontally, and the igniter rods obtain their slight rotary motion from face cams on the cam-shaft. Very large inspection-covers are fitted above the valves, and through these the igniters can be withdrawn when necessary. Among other special engines which were shown for the first time last year, and are again on exhibition, is the double-acting Rene

Legros, which we described at the time. The Luc Court chassis is also again on view, this being constructed, it will be remembered, so that the rear portion can be removed complete with the body and the front part, recoupled up again to another rear section mounted with a different body, the object being to facilitate the interchange of various bodies of different sizes.

Voiturettes.

There are quite a number of little two-seated cars at the Salon this year, but it cannot be said that many of them offer any remarkable attractions, or are worthy of classification among such cars as the 6-h.p. Wolseley. The majority are little live-axle machines, with tiny spindles for propeller-shafts and diminutive engines and gear-boxes mounted on rather rickety underframes. In fact, not a few of them look as if they might collapse if they were trodden

on. One or two makers, as usual, display a startling disregard for orthodox principles by adopting some more or less ingenious novelty in the design. There is the Sizaire and Naudin, for instance, which has a three-speed gear, in which every speed is direct. This is obtained by mounting three pinions on the propeller-shaft and engaging them in turn with a single, large, facial, toothed wheel on the rear axle. We have not yet had an opportunity of inspecting the shape of the teeth, but it is to be presumed that those on the big wheel are of an unusual form. In some other points the simplicity of the chassis construction is worthy of attention. It has a wood frame suspended on projecting leaf-springs at the rear, and on a single transverse spring in front. The front axle actually forms part of the frame, and the vertical steering-heads pass freely through the bosses at each end; it is on their projecting ends that the tips of the inverted transverse spring—which is tied to the axle at its centre—are allowed to rest. A single-disc clutch transmits the power from the engine to the

THE PARIS SALON.—The Auto-Mixte Chassis, in which a dynamo and battery, B, are used as a substitute for the change-speed-gear. Immediately behind the dynamo is the magnetic clutch and brake. A disc is keyed to the propeller shaft and is clutched, magnetically, to the engine shaft when driving, and to a stationary member when retarding.

THE PARIS SALON.—A De Dietrich *Berline de Route*, which has the small double seat behind protected by a neat hood. It is a very handsome carriage and is particularly suitable for those who wish to take their own servants and luggage with them when touring.

propeller-shaft. Of quite a different type is the little S.V.P. car, which has the rear wheels carried by a stationary axle, and driven through spur-gearing from a transverse countershaft. This countershaft is divided, but has no differential; instead, it is driven by a belt which bridges the divided pulley, so that if one half wants to go faster, or slower, than the other it has to slip under the belt. The belt passes the full length of the chassis to a gear-box, which adjoins the crank-chamber. Two speeds are available by the sliding-spur-wheel-gear, and the declutching is obtained by swinging over the gear-box bodily until the belt is slack.

Mention might also be made of the Guy voiturette, which has a 4-cylinder engine of only 7-h.p. It is air cooled, its power is transmitted through a fibre-faced cone-clutch and a cardan-shaft to a live-rear-axle. Then, also, there is the surprising little Otav, which has a single-cylinder engine driving a countershaft by a chain, and the rear wheels driven by side belts.

Electric Vehicles.

Curiously enough, electric cars are quite a feature of the Exhibition—of course, comparatively speaking. Among the exhibitors were Vedrine, Jeantaud, Krieger, Columbia, Gallia, Dinin, Milde, Electromotion, Cardinet, and Zeddeco. Some of these names are already famous, and most of them are well-known in connection with accumulator manufacture, even if they have not previously been associated with actual cars. In general, of course, the cars are purely town carriages, although, for the most part, their design seems less graceful than that of those to which we are accustomed in London. In some cases, however, there was an obvious anxiety to copy the modern touring car, but whether with an eye to the possibilities of the bonnet as a storage place for bulky batteries, or whether with a view to meeting a genuine demand for this form of vehicle, it is im-

possible to say. Of course, the accumulators are in each case ultra-Edisonian in their vaunted capabilities, but notwithstanding the imposing exhibits there is no real sign that the electric vehicle has as yet outgrown its legitimate limits of use as a desirable town vehicle for high-class society. Without going into detail about the various systems, it is interesting to note the variety in the transmission adopted in each case, since it offers a strong contrast to modern practice in petrol cars. Vedrine and Dinin cars have a live-rear-axle driven through spur-gearing by a single motor mounted upon it. Jeantaud drives in a similar manner on the front axle. Krieger has a motor against each front wheel and a drive to each through internal gearing. Columbia and Gallia vehicles are similarly driven on the rear wheels, except the little runabouts, made by the former company, which have a single chain to drive the live-axle. Milde employs a single motor and a cardan-shaft; Cardinet does the same, but this car has the motor under the bonnet and the shaft is driven by a chain. Electromotion cars have motors enclosed inside each of the rear wheels, while the Zeddeco cars have a similar system applied to the front wheels. In this latter case, Lohner motors are used, similar to those described in our issue of April 4th, 1903.

(To be continued.)

THE PARIS SALON.—View of the automatic starting device on a Renault Chassis. A toothed wheel is mounted on the periphery of the fly-wheel and with this engages a small pinion driven by a three-cylinder compressed air engine, A. The compressed air is carried in a cylinder attached to the frame, and can be maintained by opening a valve communicating with the cylinders of the main petrol engine. Provision is, of course, made for throwing the starting device out of gear when the engine has been started.

MOTOR VOLUNTEER CORPS.

(Officially Communicated.)

THE 31st October brought to a close the third volunteer year since the formation of the Motor Volunteer Corps, and it has on the whole been most successful.

The efficiency of the corps has been well maintained, and the readiness invariably displayed by its officers and members to accept duty, although often at extremely short notice, is evidence that the right spirit is predominant, and so long as this spirit exists continued success may be looked for.

The whole of the staff tours carried out by the regular forces have been performed by the aid of the Motor Volunteer Corps, and the Generals Commanding-in-Chief have testified in every way to the high state of efficiency and utility attained, which high opinion has been confirmed by H.R.H. the Duke of Connaught, Inspector-General of the Forces, and by the Chief of the General Staff.

Very varied has been the nature of the duties performed, amongst which have been royal visits, royal reviews, staff tours, signalling operations (long distance), recruiting tours, tactical examinations, manœuvres, &c., &c., and it is highly creditable that in every case the demands of the military authorities were complied with, notwithstanding the fact that in many instances less than 24 hours' notice was given to the commanding officer.

By command of His Majesty the King a strong detachment appeared at the Royal Review, held at Aldershot, on the occasion of the visit of the King of Spain, and the Scottish Sub-command was present at the recent Royal Review of the Scottish Volunteers.

During the year 124 duties were performed, which occupied no less than 1,321 days.

Taking the strength of the corps during the year, *i.e.*, 159, all ranks, an average of 10'18 days' duty was performed by each officer and member.

The total distance travelled on duty by cars was 87,941 miles, and by cycles 10,338 miles, being an average of 814'26 miles per car and 516'90 miles per cycle during the year, and 75'42 miles per car, and 74'91 miles per cycle for each day employed.

Excluding the capitation grant paid by the Government to the corps, the cost to the public for the use of the motors has been approximately 5*d.* per mile for cars, and 1*½d.* per mile for cycles.

Owing to the fact that no general manœuvres took place during the past year a few of the cyclists were without employment, which is to be regretted, but it is hoped that during the coming year extensive army manœuvres will take place, when the cyclist members will be able to repeat the useful service performed by them in 1904 in Essex, when they travelled over 17,000 miles, and won golden opinions from every general officer employed in those operations.

The few instances of breaks-down whilst on duty were of such an obviously unpreventable description, being in all cases due to those misfortunes which the best conducted motor cars are heirs to, that they speak volumes for the excellence of the cars placed at their country's service by the gentlemen of the corps.

Considering all things, therefore, it must be admitted that the Motor Volunteer Corps has gained much honour and credit during the volunteer year which has just ended, and Colonel Mayhew has every reason to be proud of his command.

Impressive Figures.—As the Royal Commission on the Motor Car Acts is still engaged on its labours, no opportunity should be lost of drawing attention to the great and growing importance of automobile manufactures for the well being of this country. We embrace the opportunity therefore afforded by the recent utterances of the French Minister of Commerce to bring the figures relative to the French export trade, which we have previously published, up to date. They are as follows, for the years since 1897 :—

Francs.			Francs.		
1897	...	623,000	1901	...	15,782,000
1898	...	1,649,000	1902	...	30,219,000
1899	...	4,259,000	1903	...	50,837,000
1900	...	9,417,000	1904	...	71,302,000

The Minister of Commerce further estimates that the value of the automobile exports from the Republic from the year 1905 will total at least one hundred million francs. It must be borne in mind that Great Britain (as universally recognised on the other side of the Channel) is the best customer that the French automobile manufacturers possess, and that the great bulk of the exports, probably about three-quarters of them, find their way to Great Britain. No more eloquent testimony of the great and growing importance of the automobile industry for this country need be asked for. In addition to the enormous number of cars and accessories manufactured at home, increasing as it does by leaps and bounds every month, the English market still requires the importation of this enormous supply of automobiles from France alone, without taking into account the very large additions from Germany and the United States. From the latter country, the exports—which are now for the first time published separately for each country—are by no means negligible either, and from them it can now be ascertained that in this case also Great Britain is the best customer. Adding to the amount exported to the British Islands those exported from the U.S.A. to other British possessions, notably British North America, it will be seen that upwards of one half of the total automobile exports from the United States find their way into the hands of British purchasers. The actual values are as follows :—

			October.	10 months.
United Kingdom	...	...	\$50,136	\$604,782
France	...	...	2,190	254,030
Germany	...	...	8,162	101,998
Italy	...	...	1,740	154,325
Other Europe	...	...	8,903	222,817
British North America	...	...	18,715	501,765
Mexico	...	...	13,404	150,042
Other West Indies and Bermuda	...	...	12,274	124,552
South America	...	...	5,571	48,938
British East India	...	...	3,620	28,602
British Australasia	...	...	4,043	85,548
Other Asia and Oceania	...	...	1,318	60,591
Africa	...	...	2,716	28,737
Other Countries	...	...	1,136	2,894
Totals	...	...	\$133,988	\$2,369,621

French Official Records.—Owing to the many questions which have arisen in connection with records on the Arles-Salon road, the A.C. de France have issued a statement governing official records for the future. Records on this road may be made over 1, 5, and 10 kiloms., between the 59th and 49th kilometre points. Commencing from January 1st, the club notify that in order to prevent possible irregularities due to individual organisation and lax control, records will not be officially recorded unless they are established in open and public trials authorised by the A.C. de France.

THE NEW ARROL-JOHNSTON PETROL CARS.—PART VI.

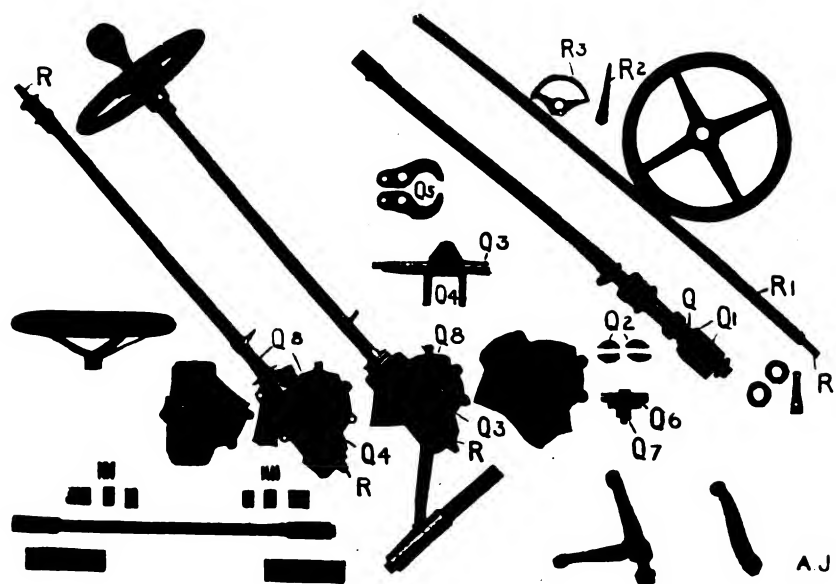


Fig. 24.—The Arrol-Johnston Steering-gear, one of the special features of which is the adjustment-screw, Q^7 , for taking up back-lash. Views showing it both complete and in parts.

The Brakes.

AN exceptionally good type of brake has been devised for these cars, for not only is it powerful though "soft"

the bottom as well as at the top. Their lower ends nearly meet about the same fulcrum-pin, and are only held together about that pin by the collars, P^2 , that encircle the projecting bosses.

For holding the shoes clear of the brake-drum, there are two strong springs, P^3 , arranged as seen in Fig. 21, and, for forcing them apart, there is a simple lever-mechanism operated by the rod, P^4 . Passing through one of the two levers that actually engage with the brake-shoes is an easily accessible set-screw, P^5 , that alone provides for all necessary adjustment, and this set-screw has a nut by which it may be locked when readjusted.

The Steering-Gear.

Special care has been taken in the design of the Arrol-Johnston steering-gear, to prevent the threads of the worm and nut from wearing unequally, and to provide a ready means by which any wear that does occur can be easily taken up. With these

objects in view, the doubled-threaded worm, Q , is made sufficiently long to accommodate the nut, Q^1 , at all times, and this nut, which is made in two separate parts, has a slight space left between the two portions. Each

part has projections, upon which ride the curved bearing-pieces, Q^2 , these pieces being held in place by the encircling arms, Q^4 and Q^5 .

The nut, Q^1 , itself is, of course, prevented—by machined faces—from turning round inside the oil-tight casing, and the arms, Q^4 and Q^5 , are carried by the rock-shaft, Q^3 . One pair of arms, Q^4 , is fixed rigidly to the shaft, Q^3 , but the other pair, Q^5 , rides freely about it. Both sets have, however, other projections by which they can be forced up together, scissor fashion, and made to grip the bearing-pieces, Q^2 . For this purpose, holes are drilled through the shorter projections of each of the arms, Q^3 , and into these holes fit the ends of the yoke-bar, Q^6 . Through the yoke-bar is a bolt with a spring-washer beneath its nut, and this bolt passes through the corresponding hole in the arms, Q^4 .

When the steering-gear is fixed in place, the inspection-cap, Q^2 , is readily accessible at the top of the casing, and, since the nut, Q^1 , lies just inside the cap, it is easy to tighten it at any time. The effect of tightening it is to draw the arms, Q^4 and Q^5 , closer up together, and also to force the two halves of the nut, Q^1 , more tightly up against the threads of the worm, Q .

On both sides of the worm, Q , are ball-thrust collars, the upper of these being adjustable to take up all end play. The worm itself and the steering-pillar are hollow, and inside them are a sleeve, R^1 , for holding the quadrant, R^2 , and a smaller tube, R , to which is fixed the engine-controlling lever, R^3 . It is this smaller tube that also serves to connect the rubber bulb above the steering-wheel with the hooter. In Fig. 24, the ball-and-socket joints, and the tube, that connect the steering-gear with the lever-arms on the front-axle, are shown lying beneath the parts with which we have just been dealing, and so, too, are the lever-arms themselves. In Fig. 25, the construction is shown partly by sectional drawings and partly in elevation.

Concluding Remarks.

From the particulars which we have now given, concerning the construction of the new Arrol-Johnston cars, it will have been evident that, even down to the most

minute detail, their design has been the result of most careful study and consideration on the part of Mr. J. S. Napier and his assistant staff of engineers. We have, too, laid special emphasis on the fact that every care, and a considerable amount of unusually expert knowledge, has been brought to bear on the selection of the most suitable grades of material from which to make each and every individual part, and that all the most up-to-date methods of manufacture—in large interchangeable quantities—have been adopted in the Paisley works. It only remains, therefore, to say a few words about the actual capabilities and qualities of the new cars which are now being turned out, and naturally our readers will take an even greater interest, from this point of view, in the horizontal type of car—the 12-15-h.p. model—than in the larger and more orthodox 4-cylinder vehicle.

We have ourselves, during the past few weeks, been using one of the Tourist Trophy cars, and have already driven it a considerable distance both in the traffic and in the open country, with the result that we are able to speak from practical experience of the many undoubted merits of this type of vehicle. Although only finished off primarily with a view to running in the race, we have found it an exceptionally comfortable car, and one that is extremely handy for all-round general work. Geared somewhat high—as is this particular car—in comparison with most vehicles of similar power (18-h.p.), it yet lends itself well for travelling quite slowly, or for restarting in traffic, on the top gear, and nothing more could be desired as regards hill-climbing. So far as the engine is concerned, it may be said that we know of no other twin-cylinder petrol engine that runs more smoothly or takes to its work more kindly, while the absolutely automatic nature of the lubricating system, and the freedom from risk of smoke issuing with the exhaust gases, are most satisfactory features. Mention should, moreover, be made both of the remarkable facility with which changes can be made from any one "speed" to another—this being but one merit of the special form of clutch employed—and of the extremely effective brakes, which are well calculated to give confidence on any hill, however steep.

Table of Reference Letters for the Arrol-Johnston Petrol Cars.

<p><i>12-15-h.p. Engine.</i></p> <p>A Cylinder-casting. A¹ Pistons. A² Connecting links. A³ Valve-chambers. A⁴ Induction pipes. A⁵ Throttle-valve. A⁶ Carburettor. A⁷ Igniters. A⁸ Exhaust-valves. B Crank-chamber casting. B¹ Crank shaft. B² Bearing brackets. B³ Trunnion projections. B⁴ Trunnion pins. B⁵ Exhaust cams. B⁶ Shafts for B³. B⁷ Pinion on crank-shaft. C Crank-chamber covers. C¹ Rocking levers. C² Connecting-rods. C³ Water pump. C⁴ Oil pump. C⁵ Oil pipes.</p>	<p><i>24-30-h.p. Engine.</i></p> <p>D Copper jackets. D¹ Induction pipes. D² Induction passages. D³ Inlet-valves. D⁴ Push-rods. D⁵ Rockers. D⁶ Carburettor. D⁷ Exhaust pipes. D⁸ Exhaust passages. D⁹ Cam-shaft casing cover. E Insulated igniter contact. E¹ Rocking contact-arm.</p>	<p><i>Change-Speed-Gear.</i></p> <p>G Coupling to clutch-shaft. G¹ Wheel driving lay-shaft. G² Clutch jaws on G¹. G³ Lay-shaft wheel driven by G¹. G⁴ 1st-speed wheel on lay-shaft. G⁵ 2nd-speed wheel on lay-shaft. G⁶ 3rd-speed wheel on lay-shaft. H Driving shaft. H¹ Coupling-fork on H. H² Clutch-jaws on H¹. H³ Universal-joint ring. H⁴ 1st-speed wheel on H. H⁵ 2nd-speed wheel on H. H⁶ 3rd-speed wheel on H. H⁷ Coupling-fork on propeller-shaft. H⁸ Casing for universal joint. H⁹ Propeller-shaft.</p>	<p><i>12-15-h.p. Operating Mechanism.</i></p> <p>J Sliding-rod for 3rd and 4th speeds.</p>	<p>J¹ Sliding-rod for 1st and 2nd speeds. J² Sliding-rod for reverse. J³ Locking cage. J⁴ Reversing pinion. J⁵ Operating sleeve.</p>	<p><i>24-30-h.p. Operating Mechanism.</i></p>	<p>K Operating lever for 3rd and 4th speeds. K¹ Operating lever for 1st, 2nd, and "reverse." K² Sliding-rod for K. K³ Sliding-rod for K¹. K⁴ Lever-arm for "reverse" pinions. K⁵ Intermediate pinion for H⁴. K⁶ Intermediate pinion for G⁴. K⁷ Disengaging spring.</p>	<p><i>Spring-Drive Mechanism.</i></p>	<p>L Coupling fork on H⁹. L¹ Guide-blocks on L. L² Ball-fitting on M¹. L³ Carrier-ring for L¹. M Shaft carrying bevel-pinion, M⁷. M¹ Main-casting for spring-drive. M² Outer casing for same. M³ Driving lugs inside M². M⁴ Cushion springs. M⁵ Dust cover. M⁶ Brake-drum. M⁷ Bevel-pinion. M⁸ Bevel-wheel.</p>	<p><i>Live-Axle.</i></p> <p>N Differential driving shafts. N¹ Shell of differential-gear. N² Spider for planet. N³ Axle-tubes. N⁴ Hub roller-bearings. N⁵ Flanges for road-wheels.</p>	<p><i>Brakes.</i></p> <p>P Brake-shoes. P¹ Collars for P. P² Springs for P. P³ Operating-rods. P⁴ Adjustment screw.</p>	<p><i>Steering-Gear.</i></p> <p>Q Screw-thread. Q¹ Nut. Q² Segment blocks. Q³ Rock-shaft. Q⁴ Arms fixed to Q³. Q⁵ Arms riding upon Q³. Q⁶ Yoke-bar for Q⁵. Q⁷ Adjustment nut. Q⁸ Inspection cover. R Tube carrying lever, R³. R¹ Tube carrying quadrant, R². R² Engine-controlling lever. R³ Quadrant for same.</p>
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“DIRECT-DRIVE”—IS IT A MONOPOLY?

It does sometimes happen—and the very nature of the Patent Laws renders it ever possible—that after everyone has become accustomed to the unrestricted use of some particular type of mechanism, it is suddenly found to be a patented invention. So far, it is of course impossible to express any definite opinion as to whether this is now the case with the “direct-drive,” that forms so familiar a feature of most modern petrol vehicles, but it appears that the celebrated Renault firm of automobile builders in France, are at least considering the extent to which they hold the exclusive rights to use it. Such an enormous number of cars—and indeed the majority of makers—now employ the “direct-drive” system for transmitting the power straight through the gear-box, to give the top “speed,” that the question is one of no small moment to all motorists, for there is, at least, the matter of possible royalty to be considered.

According to a French contemporary, the Renault Company base their claims on a patent taken out in France on February 9th, 1899, but it would, of course, only be the corresponding English patent that would affect motorists in this country. Apparently the English patent in question is that of Louis Renault, dated the 22nd February of the same year, and this bears the number 3981. Much obviously depends upon possible anticipation by other users or inventors, but in view of the interest which is sure to be taken in the patent, we

alone, indicate that a “direct-drive” could be obtained straight through the gear-box, B, from the clutch, A, to the bevel-pinion, E, and that in general respects the arrangement is like that now employed on most live-axle vehicles.

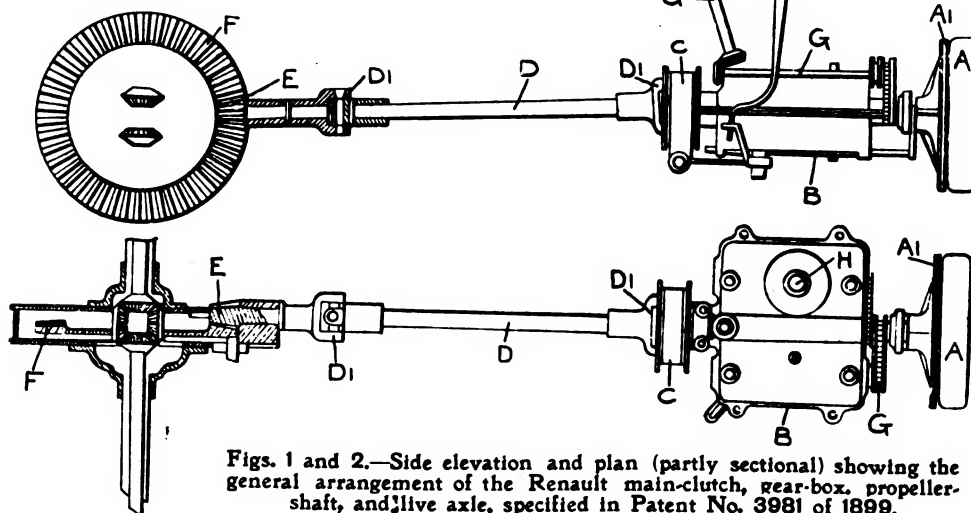
In Fig. 3 there are four drawings that indicate the construction of the gear-box, those on the right being a plan (with the top of the box taken off), and a vertical section through the box, with the “through” shaft in elevation. On the left, the upper drawing is another vertical section, but in this case it is the lay-shaft, J—that which is used for the first speed and for the “reverse”—of which a side elevation is given. The remaining drawing is a front elevation of the gear-box, and this gives a good idea of the positions occupied by the operative and the operating shafts.

Very little explanation need be given, except that there are two lay-shafts (J and K), and that both are mounted eccentrically in their bearings to enable their gear-wheels to be brought into mesh laterally—instead of by a sliding motion—with those on the “through” shaft. The chief feature, of course, is that the “through” shaft is made in two parts, L and M,

which are locked together by the jaw-clutch, N, when the third speed is wanted. For this purpose the wheel, L'—together with one portion of the jaw-clutch, N, is rendered free to slide on the shaft, L, but is normally—when running—locked to the shaft, M, by virtue of the spring, N¹; this sliding member is moved forward, against the action of the spring, N¹, by the fork, G¹, to throw the third speed out of action.

The two wheels, M¹ and M², are used, respectively, in conjunction with the lay-shafts, J and K, for they correspond with the spur-wheels, J¹ and K¹, on those shafts, in just the same way that the other spur-wheels, J² and K², correspond with the wheel L¹. For the first speed the lay-shaft, J, is thrown inwards by its eccentric bearings to bring its wheels into mesh with those on the interrupted “through” shaft, and similarly the second speed is obtained by bringing the lay-shaft, K, up towards the “through” shaft. One or other of them then constitute a bridge, through which the power is transmitted, the gear-ratios of the four spur-wheels for each “train” being suitably proportioned to give the required result.

Precisely how the lay-shafts are controlled by the mechanism, G, is relatively unimportant, but a word of explanation concerning the “reverse” gear is, we think, needed. Mounted on the lay-shaft, J, are two facing bevel-wheels, J³ and J⁴, while between them is a jaw-



Figs. 1 and 2.—Side elevation and plan (partly sectional) showing the general arrangement of the Renault main-clutch, gear-box, propeller-shaft, and live axle, specified in Patent No. 3981 of 1899.

now give a *résumé* of the specification, together with the “claims” and some of the attendant drawings. Even apart from any likelihood of forcible action being taken by the owners of the patent, the invention itself is well worthy of notice, for it at least—apart from other considerations—brings home the remarkable progress of the industry during the past seven years.

Figs. 1 and 2 are more or less diagrammatic, and are partly sectional, being a side elevation and a plan, respectively, of the clutch, A (with its retarding brake-ring, A¹), the gear-box, B (with the foot-brake, C, just behind it), the propeller-shaft, D (with universal joints, D¹, at each end), the bevel-pinion, F, and the bevel-wheel, E, on the “live” rear-axle. Fig. 1 also shows the somewhat complicated gear, G, for operating the three forward “speeds” from the steering-pillar, and the curious little pedal, H, (in the top of the gear-box) for bringing the “reverse” bevel into engagement. These drawings,

clutch that "breaks" the shaft into two independent elements in just the same way that the "through" shaft is "broken" by the jaw-clutch, N. Normally the spring, H¹, keeps the sliding bevel-wheel, J³, locked direct to the bevel-wheel, J⁴, but arranged above them is an intermediate bevel-wheel, H², carried by the "reverse" pedal, H. When the pedal is depressed, the bevel-wheel, H², forces the wheel, J³, away from the wheel, J⁴, and brings itself into mesh with both of them. The rear portion of the shaft, J, is thus caused to revolve in the opposite direction to the front portion, and consequently the car is driven slowly backwards, if the wheels, L¹, J², J¹, and M¹, are also in engagement with one another. The following are the "claims" made by the inventor in his English patent:—

1. An improved driving and speed-changing mechanism for motor vehicles, characterised by the fact that the movement is transmitted from the motor to the driving-wheels directly by gear-wheels without the medium of chains or belts, though the motor and the speed-changing mechanism be supported on springs, and capable of being moved independently from the wheels, the said mechanism comprising moreover the above described peculiar devices enabling the movement to be transmitted through two gear-wheels only, and the changes of speed to be effected while reducing the friction to a minimum, substantially as and for the purposes specified.

2. In gearing for motor vehicles, the combination of friction-clutch mechanism forming a coupling, a brake working with one section of the coupling, means for actuating the brake and coupling in unison, and means for transmitting the movement of the coupling section with which the brake is connected.

3. In gearing for motor vehicles, the combination of clutch and brake mechanisms, a toothed wheel, and a shaft connecting the clutch and brake mechanisms with the toothed wheel, the connections of the shaft being such as to permit the independent play of the clutch and brake mechanism with respect to the toothed wheel.

4. A gearing for motor vehicles, the gearing being arranged in two sections, and a shaft connecting the sections, the connections being such as to permit the independent movement of the several sections of the gearing.

5. In a gearing for motor vehicles, the combination of a primary movement member driven from the motor, a clutch working with said member, a shaft driven by the clutch, the shaft being in two sections with a releasable connection between them, variable speed-

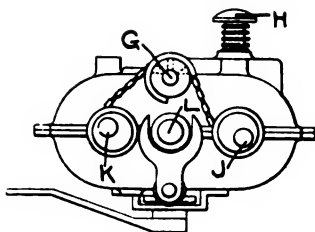


Fig. 3.—Four drawings of the 1899 Renault gear-box. On the right, is a side elevation of the central "through" shaft—the gear-box being shown in section; above it, is a plan of the gear-shafts with their gear-wheels; on the left, is a front elevation of the gear-box, and above that drawing is a side elevation of the first speed and "reverse" lay-shaft with the casing in section.

gear for driving the sections of the shaft, and movement-transmitting devices in connection with said shaft.

6. The combination of a shaft formed in two sections, a clutch connecting the sections with each other, an eccentrically-mounted shaft, movable eccentrically toward and from the first-named shaft, gears fastened to the several shafts, and means for operating the clutch and for throwing the eccentric shaft in unison with each other.

7. The combination with a casing, of a shaft mounted thereon and formed in two sections, a clutch connecting the sections, a shaft mounted in the casing, means in connection with the shaft for throwing the clutch, a third shaft eccentrically mounted in the casing and movable toward and from the first-named shaft, gear-wheels attached to the first-named shaft and to the eccentric-shaft, and means for throwing said eccentric-shaft, such means having connection with the second-named shaft.

Of these claims, it is No. 5 that obviously attracts most attention, though Nos. 1 and 4 also bear upon the "direct-drive" arrangement as used to-day.



WHEN your memory becomes a blank, from excessive indulgence in C₂H₅O or any other cause, creditable or otherwise, and you subsequently find yourself in the witness box, do not make any definite statement on oath as to what occurred during the mnemonical blank. This self-evident precept was neglected by Mr. H. A. Routh, of Leeds, in last July, with the result that he has now been ordered six weeks' imprisonment in the second division for perjury. In the early part of July last Mr. Routh was prosecuted for driving through North Street, Leeds, with his tail lamp out. Giving evidence in his own behalf, he swore that he was not in North Street at the time in question. It was subsequently, however, proved both that Mr. Routh was in North Street at the time the policeman alleged, and that he had been merry-making with such effect that he had no recollection whatever of what transpired after he betook himself to the Queen's Hotel, but was under the

impression that he had spent the whole of the night in that hostelry. The judge made some very severe remarks, and inflicted on Mr. Routh the sentence we have alluded to above. The punishment, it must be admitted, is, for perjury, a light one, and it was probably mitigated by the judge's doubt, in spite of his one-sided summing-up, as to whether real perjury had been committed, for it would certainly appear that Mr. Routh at the time he gave his evidence honestly believed it to be true.

IN order to render motoring in the desert possible, two American inventors have devised a special tyre, which consists of sandbags strapped on each side of an ordinary pneumatic tyre. This is homœopathic treatment, or tackling like with like, with a vengeance. Contemporaneously, two other American inventors have devised a special desert.

CORRESPONDENCE.

* * *The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.*

SPRING WHEELS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Mr. Clifford Hallé, in his letter appearing in your columns, says I seem to have convinced myself that the movement of the axle of a spring wheel relatively to the rim causes a change of gear, my letter had not been despatched long when I saw the error of this reasoning, but this does not affect my views on the subject as a whole. The effect, although driving out of the centre, is just the same as an ordinary wheel as far as gearing is concerned, only in the case of the axle being out of the centre, in a driving-spring-wheel the power is conveyed through the centre but at a point away from it. For in both cases an equal distance would be travelled with one turn of the hub or axle, even in the case of the axle being pressed out of the centre during the whole revolution of a spring wheel.

With reference to the correct place for the springs to be fitted, namely, between the car body and axle, hub and rim or a combination of both, time should tell, and it is only by practical experiments in a great many instances that the real truth can be arrived at. Should there be commercial advantages to be gained by using spring wheels, then I wish the inventors the success they deserve.

Wandsworth.

A. V. ROE.

ORGAN-PATTERN FOOT-PEDALS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Steel foot-pedals for motor cars are now almost universal, some of which are of very solid construction, consequently after driving a few miles in winter time one's feet are apt to get cold, and more so when there is not much chance to remove the feet from the pedals.

I have recently been trying pedals of the organ type, and find them a great comfort after the steel pedals, then again they can be fitted with removable thick felt mats or some non-conductive material, or, to carry the point of comfort still further, boot muffs can be fitted on them.

Some people prefer the "push" pedals, while others the "press down," but the organ type has the advantages of both, as neither is the heel slipping on the footboards or the feet on the pedals.

Yours faithfully,

A. V. ROE.

DANGEROUS ROADS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Will you kindly allow me the hospitality of your columns to strongly protest against the dangerous state of the stretch of road between "The Bell," Hounslow, and Hounslow Barracks. I happened to be passing through this neighbourhood a day or so ago, and was driving my car partly on the tram lines and partly on the macadam. Overtaking a small van, I naturally endeavoured to steer the wheels, which were on the concrete, across the tram lines, in order to pass the vehicle, but owing to the macadam being, in places, three inches below the tramway track, I was unable to do this, with the result that the wheels skidded, the car running into the van, doing considerable damage.

I should certainly advise your readers to use any other route than this until the roads are improved, as the present condition of the thoroughfare in this district is positively suicidal, not only to motorists, but to all other users of the road. It is noteworthy that the Tramway Corporation and District Council repudiate any liability when accidents occur.

Yours faithfully,

Kensington, Dec. 12.

W. H. ARNOLD.

THE TOURIST TROPHY REGULATIONS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I am in receipt of the final Regulations for next year's contest, and observe with much surprise that petroleum spirit only is to be permitted, and that the allowance for both petrol and steam cars is to be one gallon for every 25 miles. Therefore, steam cars are, to all intents and purposes, debarred from competing; the Turner-Miesse and Serpollet absolutely, for they use paraffin, not petroleum spirit.

It is obvious, therefore, that the letters of Messrs. Claude Johnson, S. F. Edge, C. S. Rolls, &c.—all directly interested in the manufacture of petrol cars—have had undue weight with the Committee of the A.C.G.B.I., who, after recommending such a basis as would give steam cars at least a sporting chance, have now performed a

complete "volte face," and have precluded the possibility of any steam car successfully competing, and prevent the Turner-Miesse and Serpollet competing at all.

Is it to be wondered at that the advocates of steam cars should smart under a sense of gross injustice? It is entirely contrary to the British idea of sport, that because certain manufacturers and those interested in petrol cars, have an uneasy idea of the possibility of a steam car winning the Trophy, that no steam or other car using a cheap fuel such as paraffin shall be allowed to enter.

It may be business on the part of those interested in the manufacture of petrol cars, but it certainly is not sport. Any unprejudiced person will admit that every encouragement should probably be given to those firms who are seeking to find a satisfactory and cheaper substitute for petrol, which is bound to increase in price in the near future.

Is this barring of steam cars to be the rule all over again in the case of Hill-Climbs and Speed Contests next year? I had hoped otherwise. If such is the case, the public ought surely to consider it the best testimony to the merits of the steam car that the advocates thereof could ask for.

The Frenchman gives steam its chance, and allows Serpollet to compete; in America the White and Stanley have a fair field; but in England the position taken up by the Committee of the A.C.G.B.I.—an Institution presumably founded for the encouragement of the industry as a whole, and not purely to protect the interests of petrol car manufacturers—appears to be that lest perchance a steam car should win, we will either bar it altogether or make the conditions impossible for it to successfully compete.

I think an explanation from the Committee of the A.C.G.B.I. as to the reasons which caused them to disregard the suggestions of their Technical Committee (who recommended regulations which would have given steam cars a sporting chance in 1906) would be received with interest by motorists generally.

It would also be convenient if the A.C.G.B.I. would state if they intend to bar Turner-Miesse, Serpollet, White, Stanley, and other steam cars from the competitions held under their rules during 1906, and their reasons why it would be unfair to the petrol car to permit the steam cars to show what they can do alongside petrol cars of the same price.

Yours truly,

Wolverhampton, Dec. 15th.

J. BURNS-DUMBELL.

P.S.—I observe since writing above that a protest was received from the Society of Motor Manufacturers against the proposed regulations permitting steam cars to compete. The public, therefore, ought to appreciate the fact that it is the manufacturers of petrol cars, and to a great extent the English agents of foreign built petrol cars, whose bias has been permitted to outweigh the regulations suggested by the Technical Committee of the A.C.G.B.I.

Is it fair to steam that rival manufacturers should be allowed to decide the matter?

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—“Fair field and no favour” is the wish (or supposed to be) of every British sportsman, no matter what the line may be. I think this spirit might be applied to the present vexed steam petrol question without a great amount of difficulty. So far as I can gather a brief summary of the position is—

Petrol car objects to steam having a larger allowance of fuel per mile than allowed to petrol car.

Steam car says, I ought to have about *twice* the amount of fuel as I can run on paraffin which is half the price.

For the sake of a basis, I think we might take paraffin actually as half price, as although paraffin is really cheaper than this at present, it is not on fair valuation, but owing to temporary fierce competition between the oil companies.

Against this, in the case of the steam car, we must put the disadvantage of having to carry twice as much fuel or fill the tanks twice as often, and the fact that paraffin is disagreeable, dirty, smelly stuff to handle, and liable to get wherever not required and stay there, whereas petrol is clean to handle and if spilled soon evaporates.

Paraffin, it is claimed, can be obtained almost anywhere, but I don't think this is much in its favour in this country, but it is worthy of consideration when motor vehicles are shipped abroad.

Now, I take it, the T.T. Race is for the improvement of motor vehicles and not for sport (more's the pity), and as reduction in running expenses is a very important improvement, especially as applied to commercial vehicles, paraffin, in spite of its disagreeable qualities, ought to be given at any rate a “fair field.”

I would suggest that the Committee dealing with the T.T. Race should carefully consider all the pros and cons of paraffin and petrol respectively, and then quote an optional allowance based on the present 25 miles per gallon (petrol), allowing 16, 18, 20 or more

miles to the gallon, as the case may be, if paraffin be used, the rule to apply equally to steam and internal combustion motors.

Under these conditions, I do not think either party would have cause for complaint provided the rule regarding this be published at once in order to give manufacturers time to experiment with and perfect paraffin carburettors and burners.

Should the Committee not find (as I expect they would) that the disadvantages of paraffin quite outbalance its advantage in cost, then in the actual race every car would start *cold*, that is to say, no time would be allowed for lighting burners or heating carburettors, &c., and time so occupied would count as running time.

Yours faithfully,

ERNEST H. ARNOTT.

Teddington, Dec. 16th.

AN IMPRESSION OF THE PARIS SALON AND OLYMPIA.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Never was it easier after a visit to Paris to set down one's impression of the Automobile Salon of the year. In years past I have been bewildered with a number of ideas which were harder to formulate than to put down when formulated, but this year all is changed. The lessons to be learned are few, simple and easy to appreciate.

Just one word for the Exhibition as a sight. Never before in the history of Exhibitions has been seen a picture so beautiful or so grand as the view from the gallery of the Grand Palais in the evening when all the lamps were alight, and the roof and dome of the building were one mass of colour and splendour. We may decrate Olympia, but never can we hope to produce so fair a picture as that of the 1905 Salon. Expense alone would present a difficulty. I was informed that the general illumination of the building costs £300 per hour when all the lights were lighted. The stands also seemed to be, taken as a whole, much finer than last year—an indication of the strenuous competition which each year grows keener and keener. Artistic to the last degree and brilliantly lighted, they were examples par excellence of the exquisite taste of the French as a nation, and as a last word of praise I may say that, as a spectacle alone, the Exhibition was well worth visiting. And then as to constructional tendencies, I looked eagerly for any particular "following" ideas, but I found none. No *clou*, no extraordinary principle, no new gospel. Even the threatened 6-cylinder boom was conspicuous by its absence. (I only discovered one French manufacturer exhibiting a 6-cylinder chassis, and he was not one of the big *marques*). Yet, in spite of this lack of sensation, there has nevertheless been a splendid year of progress in construction and design, and this was evidenced in the Exhibition—a levelling up of a number of makes, better finish, and a care and attention to detail never before known. Particularly was this noticeable in connection with the exhibits of the best known old leading firms. Simplicity in design was noticeably present where before it was noticeably absent. Attention has been paid to ease of control and silent running, and particular attention has been paid to comfortable suspension, and these many important advantages are not secured at the expense of simplicity. Magneto ignition, either low or high tension, now seems to be almost universally adopted by every firm of note, and lubrication fittings have been considerably simplified. No one appears to have decided which is the most graceful and effective shape for the radiator, and in consequence every possible size, shape and form of construction is in evidence. Push pedals are universal, but no one seems to agree as to whether the side brakes should be "push on" or "pull on."

Chassis are all on the long side, necessitated by the roomy and luxurious carriage bodies now generally fitted, and on this point there is no question but that this is the year of the big closed-in car, and I think I might say that nine out of every ten cars shown, sold and used outside the Salon were of this type.

I was, frankly speaking, disappointed at the display of French carriage building this year, which did not, in my opinion, reach the standard of excellence shown at last year's Exhibition, whilst our own Olympia Exhibition was far away ahead of this year's Paris Show in displaying excellently finished and soundly constructed carriage bodies—both open and shut.

And now as to business done, there was quite a different story, when I left Paris, to that told at Olympia. Obviously the big firms were not affected, as their output for the year was sold prior to the Exposition, but as one disconsolate trader said to me, "We always expect to book a number of orders from Englishmen, but your Show being before ours has prevented their coming over this year," and consequently the dearth of English buyers has been considerably felt. This is as it should be. All those who are interested in the sale of cars in England, whether of foreign or English construction, must admit that it is much more satisfactory to do one's business

in England than to have to travel to France for the purpose. I must frankly admit that I considered the date of the English Show in November ill advised, and I still think that the risk of fog and bad weather—which would affect the success of the Exhibition very considerably—is very great, but after the experience I have gained this year at Olympia, and the information I have gleaned in Paris, I certainly consider that importers and English manufacturers should join hands solidly to secure the holding of the English Show prior to the one held in Paris, and thus make England the one great buying and selling centre in the automobile world of all makes of cars.

Yours faithfully,

Dec. 16th.

CHAS. JARROTT.

REGISTER OF POLICE CASES.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Will motorists and sympathisers kindly send us particulars of any motor car case within their knowledge where the police evidence has been successfully disproved. Our recent victory, of course, need not be included. We intend to compile and keep up to date a register which will be of the greatest benefit to every automobilist suffering, or likely to suffer, from an unjust prosecution.

Press cuttings from the agencies, however useful, are not sufficient for the purpose. We require a short account from one's personal recollection, together with, if possible, the name, rank, division, and number of the veracious constable in question, and a cutting from the paper which gave the fullest report. If you, Sir, will kindly influence the completion of what I can assure you is a sound practical scheme, every motor car driver summoned in respect of speed limit or alleged furious driving shall have the opportunity of learning from our register if his particular accuser has "any endorsement on his licence."

Like other schemes for the good of the community, it involves the trouble of a few minutes' search on the part of each interested motorist, but the value of such a record is obvious. This perjury farce shall be played out.

I am, Sir,

Your obedient servant,

STENSON COOKE,

18, Fleet Street, E.C.

Secretary, The Automobile Association.

THE SHOW QUESTION.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—On the question of separate shows for commercial and private passenger cars, we are very strongly of opinion that the time has come to hold two distinct shows, if indeed it had not already arrived before the recent Olympia Show was held.

We understand that over 150 firms were crowded out, and many well-known firms had to put up with totally inadequate space in both sections.

The number of firms now building commercial cars is quite sufficient to make a separate show a success in every way, and it must be remembered that the two classes of goods are purchased by very different types of buyers who would only be interested in the one kind of car.

Our suggestion is that the boats which are used for pleasure purposes principally should be shown at the private passenger car show, and that boats which are used for fishing or commercial purposes should be shown with the commercial cars.

We do not, however, advocate holding another show of any kind until after the coming season, as the combined show which has just been held has fully served its purpose.

Yours faithfully,

JAMES & BROWNE, LIMITED.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—When I visited the late mammoth Automobile Exhibition at Olympia I was much disappointed at the way the various makers were all jumbled up, and to find that really high-class firms had only got the same size spaces as some of the mushroom firms with which the industry is blessed—or otherwise. I am afraid I did the proprietors of the Exhibition an injustice as I put down the overcrowding to mere grasping greed on their part, but on asking one of the exhibitors I was told that the real reason the spaces were so small was that room might be found for all the foreign makers and agents for foreign cars. I read in various papers that the English makers have got to the front. If this is a fact, why should they be handicapped by only being allowed a very inadequate space for the display of their manufactures in order that foreigners should be given an equal chance of securing orders? Whilst we are all considering how to grapple with the unemployed question, we overlook the fact that by placing orders for foreign cars the only benefit we

in England get is the small profit the agent makes, and the enormous sums paid for wages and the manufacturers' profits all benefit the foreigner at the expense of our own people. No doubt it is very chivalrous, but is it sound business?

Some little time ago I read of the formation of a Society with a very high-sounding title, something about the British Empire. I have noticed that up to the present they seem to have done nothing beyond getting a free ad. in the motor Press asking for names of makers of copper tubes, &c. If this is a real Society, and not another offspring of that past-master of free advertising, Mr. S. F. Edge, cannot they do something towards holding an Exhibition of *British Manufacturers only*.

With a President and Vice-President and a large portion of the Council of the Manufacturers of Motors Society directly representing foreign firms, it is of course useless to expect them to do anything for the benefit of England, but I do hope that someone will come to the rescue, and acting up to the motto of "England for the English," give us an All-British Motor Exhibition.

Yours truly,

Rosemount, Enfield, Dec. 14th.

CHAS. NEWTON.

THE UNEMPLOYED AND THE ROADS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—Two of the most important social problems of to-day are:—

(1) The improvement of the means of internal communication, and

(2) The provision of remunerative and useful work for the unemployed.

Unfortunately it is the practice to study these problems apart: they are intimately connected and should be considered together.

We have given a considerable amount of time and attention to the investigation of both problems, and desire to make some practical suggestions for the attention of those actively dealing with the employment difficulty and engaged in the administration of public and charitable funds.

It is a fact well known to all economists that the most valuable asset a country can have is a good system of road communication. England has admittedly outgrown the capacity of its existing roads. No new main roads have been made for nearly a century. Our roads are too narrow, the trunk roads being in the main thirty instead of one hundred feet wide. Not only are they narrow, but they abound in dangerous corners and steep gradients. Moreover, they are one day dusty and the next day muddy, instead of being permanently dustless and clean. It is largely due to the insufficiency of roads that the country is confronted with a Traffic Problem, a Housing Problem and a Motor Problem.

It has been proved by experience that the improvement and the construction of roads are the most effective methods of giving work to a large amount of unskilled labour. And this for the following reasons:—(1) One skilled man can superintend a large amount of unskilled labour; (2) The employment is distributed all over the country, so there is no concentration of the unemployed in one particular locality; (3) The local administration of charitable and public funds is rendered possible; and (4) There is no competition with those so employed with existing trades.

The funds that are now being raised, if paid into a Central Fund and properly administered, will provide work for a very large number of persons. For example, assuming that £100,000 is paid into a Central Fund, those engaged in its administration should make it known that the whole or some part of the fund is to be employed in paying for labour employed in road improvements, and that they are prepared to make grants towards those schemes of road improvement which offer the most public advantage, such as the widening of a public thoroughfare, the removal of a dangerous corner, the construction of a dustless road, the reduction of a dangerous gradient, or the building of a bypass road round a village or town for the use of the through traffic. The Central Authority would receive applications for grants from all parts of the country, and it could be made a condition of the grants from the Central Fund that contributions towards the improvements should also be made by the local authority in whose area the road improvement is to be made.

It is on practical lines such as the above that we venture to suggest that the present distress can be removed by affording employment of a character which will result in permanent benefits to the people of this country.

Yours faithfully,

CADOGAN, President of the Roads Improvement Association, Incorporated.

ARTHUR STANLEY, Vice-President of the R.I.A.

W. REES JEFFREYS, Honorary Secretary of the R.I.A.

SIX CYLINDERS v. FOUR CYLINDERS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—In your issue of Dec. 9th some very interesting remarks are made with regard to the number of cylinders discussion at present agitating the automobile world. It should be extremely gratifying to all true Britishers that an English invention can so shake the foundation of automobile manufacture, and Mr. Edge can now look back with equanimity to the not very remote time when six cylinders were regarded as a fad. Kidicule and even worse have been their lot, but now the very foundations of the construction of high-grade cars have fallen, and four cylinders are as obsolete as two cylinders became a few years ago. It is extremely amusing to see the people who make or sell 4-cylinder cars getting so fearfully unhappy and excited about it. They really need not worry so. Four cylinders are only obsolete as high grade cars, and will still sell and be sold as useful vehicles for small power for those who cannot afford the initial cost of a 6-cylinder car. I say initial cost advisedly, as undoubtedly power for power the 6-cylinder is lighter in cost of upkeep. I mean in such things as petrol, tyres, and wear and tear generally, so that their occupation is not gone, but only partly so.

All engines are the result of a compromise. If we could make a 30-h.p. engine with only one cylinder that possessed the virtues of silence, smoothness of running, constant torque and flexibility, and still to use the Otto cycle with its all-important scavenging stroke, we should have indeed done something, and six cylinders would be as obsolete as four are now. But we all know that it is impossible to do this and at the same time keep within reasonable limits in regard to the weight, &c. (the fly-wheel would have to weigh about a ton). We can commercially only increase our horsepower to a higher one by adding to the number of cylinders in an engine. The real trouble underlying all this number of cylinders difficulty is the chemistry of the internal combustion motor.

It was definitely settled by Dr. Otto once for all that the waste gases must be thoroughly got rid of, and this and the compression, &c., waste more than three-quarters of an engine's time. Not only do they waste its time, but they exert a retarding effort on the piston. In the first place the exhaust valve has to be opened before the end of the firing stroke is reached, to give the gases a chance to escape so that the useful time is not even a fourth. The piston then loses some of its power in driving them out, next comes the minus pressure of the suction again taking work from the piston uselessly, and finally, and at the very worst part of the cycle, comes the compressing to be done.

Now here lies the basis of the whole matter. We have tried to get away from the Otto cycle, but we cannot at present make a commercial and economical engine on any other principle, and given this, we are given to multiplication of cylinders; the whole history of motor car evolution endorses this. Most of the thinking people knew it from the first, and it was merely a question of time and experiments in manufacture before overlapping of the firing strokes became a necessity. It seems a most illogical position to adopt four cylinders in place of two, and refuse six cylinders, given the difficulties of manufacture are worked out.

The trouble is only partly overcome in 4-cylinder engines, and fusion of the impulses is still far from complete.

Personally, I think an 8-cylinder unnecessary unless the power required is so great that other factors come into play.

The difficulties and drawbacks of the Otto cycle are met when once the impulses are overlapped, which is done in a properly designed six-cylinder, and to add to six is futile unless very high horse-power is required.

One of your correspondents refers to a 4-cylinder car mounting the Cat and Fiddle Hill on its top speed, which appears to have been rather a lowly-geared one. I can quite believe this, I myself have often driven 4-cylinder cars up steep hills on their top speeds if I have been able to get a decent start, and it has been to my immediate interest to do so, but I have been horribly distressed at the pulsations and isolated beats of the engine when she has been just able to do it, and I am far from suggesting that I did my engine, gear, and tyres any good in the process.

The chief point that differentiates the six is that in hill climbing and when crawling along on the top speed even when the engine speed is down to a very low ebb the impulses still overlap, they have no choice in the matter, and the torque, be the speed ever so low, is still a constant one.

Yours faithfully,

South Ealing, Dec. 15th.

L. F. BISHOP.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—In your paper two or three weeks ago a statement appeared that a 6-cylinder car necessitated a greater wheel base than a 40-h.p. 4-cylinder car.

I noticed at the time that a correspondent pointed out that from the published details the 40-h.p. 4-cylinder car had actually 4 inches longer wheel base than the 40-h.p. 6-cylinder, and that therefore if the 6-cylinder design in this direction was bad, the 4-cylinder was infinitely worse.

A reply to this appeared obviously begging the question, as there was no doubt that the 4-cylinder advocate had put himself into an untenable position, but instead of acknowledging himself in the wrong, he merely started to abuse the 6-cylinder principle, evidently thinking it was good policy if he had no case to abuse his opponents.

At the time I was not in a position to know whether your correspondent's statement was accurate or not, but since then I have been able through the French Exhibition to obtain dimensions of the foreign car in which your English correspondent is interested, and I find that the front axle is actually 2 inches further from the

dashboard on the 40-h.p. 4-cylinder than it is on the Napier 6-cylinder, so that not only does the 6-cylinder principle give a better designed motor car, *vide* your correspondent, namely shorter wheel base, but also more room for the body.

I have recently read that some makers are building 6-cylinder cars through panic caused by the success of one firm in this direction. It seems to me that those interested in the foreign cars are also writing letters in moments of panic without due consideration to truth or facts, and in their anxiety to cry down the 6-cylinder actually make a rod for their own backs, as from their own arguments if there is any principle that is wrong on the 6-cylinder, the same arguments applied to the 4-cylinder car makes the latter still further behind the 6-cylinder principle.

Yours truly,
St. Margarets-on-Thames, Dec. 15th. WILFRED DAWSON.



RACES, RECORDS, AND TRIALS.

FRENCH 1906 RACE.—A bad turning in the village of Achères on the Fontainebleau Circuit.

THE TOURIST TROPHY RACE.

MODIFICATIONS IN THE FINAL RULES FOR 1906.

SINCE November 11th, when we published the rules which were then issued provisionally by the A.C.G.B.I., certain modifications have been made, and some further rules have been added, these being as follows:

The new rules are numbered 4 and 18, which have the effect of changing the numbers of those that follow them. They read thus:—

4. Special awards may, at the discretion of the club, be given to those cars competing in the race which are entirely of British manufacture, such cars to comply with the Gordon-Bennett Rules so far as the country of origin is concerned.

18. Efficient mudguards shall be fitted to front and rear wheels, and form portion of body weight.

Rule 6 (formerly 5) has had the word "momentary" added after the word "stop," this being a minor alteration, but in Rule 7 (late 6), which is one over which there has been some considerable discussion recently, the same petrol allowance is now adopted for steam cars as for petrol cars. This rule now reads thus:—

7. The fuel to be used shall be provided by the club, and shall be petroleum spirit having a specific gravity of 0.695 to 0.705 at 60 deg. F. For 1906 the allowance of petroleum spirit for both petrol and steam cars shall be one gallon for every 25 miles, if the

course be in the Isle of Man, and shall be an equivalent amount if the course be elsewhere.

In Rule 10 (late 9), the minimum chassis weight is now 1,275 lbs. instead of 1,300 lbs., and in Rule 11, the total load that must be carried is now 1,125 lbs. as against 1,100 lbs.

In Rule 12 (formerly 11) there are two alterations, for not only is the minimum wheel base fixed at 8 ft., instead of 7 ft. 6 in., but the stipulation is made that oil tanks shall be fixed in the "ordinary standard positions."

In Rule 15 (late 14) the words "half a mile" are inserted after "capable of being driven," and in Rule 17 (late 16) the length of the platform behind the dashboard is specified at 7 ft. 6 in. instead of 7 ft.

Rule 21 (late 19) states that entries will be received (in subsequent years) by the club, 119, Piccadilly, not earlier than the morning after the race.

There are, moreover, a few other slight changes in the phraseology of certain other rules, but these do not materially effect the general conditions of the race.

IN the opinion of the Society of Motor Manufacturers and Traders, as a result of enquiries made throughout the trade, there does not appear to be sufficient demand to justify the Automobile Club in holding their proposed Light Van Trials during 1906.

Speedometer Trials.—The Speedometer Trials of the A.C.G.B.I. will be held in connection with the 4,000 Miles Tyre Trials, in February, 1906. No adjustments will be permitted except in the dépôt, either before or after a day's run. All speedometers must be fitted or provided with a mileage recorder. The entry fee is £25 per instrument, of which amount £15 will be placed to a common fund to be distributed among the tyre entries as a contribution towards the cost of running the cars. Entries will close January 31st, 1906. The following are the points of performance:—The speedometers entered for trial will be observed on the road, and they will be calibrated both before and after the trials. The following points, *inter alia*, will be taken into consideration in making the awards, viz.:—(a) accuracy, (b) durability, (c) the effect of reversing the car on the subsequent accuracy of the instrument, (d) price, (e) rapidity of response to variations of speed, (f) simplicity of construction and attachment, (g) steadiness of reading. The awards will consist of a gold medal to the most meritorious instrument, provided there are three entries, and, provided there are at least six entries, a silver medal to the second best. A certificate of performance will be issued to each competitor.

Gas Lamps.—Classification.

A. Generators (including stored gas containers).—Entrance fee £15.

N.B.—In the case of stored gas the cost shall be that of the complete equipment, including one spare container for each container in use, and excepting only the lamp.

B. Lamps (without generators).—(1) Costing less than £3 retail list price (fee £5); (2) £3 to £6 (fee £10); (3) more than £6 (fee £15).

C. Self-contained lamps.—(1) Costing less than £5 (fee £15); (2) from £5 to £9 (fee £20); (3) more than £9 (fee £25).

In making the awards the following points will be taken into consideration:—

Class A.

(a) Cubic feet of gas generated from one charge at normal rate of supply.

(b) Cubic feet of gas generated from one charge at normal rate of supply per pound weight of generator when fully charged.

(c) Cubic feet of gas generated from one charge at normal rate of supply per cubic foot of bulk of generator measured externally.

(d) Dryness and steadiness of generation.

(e) Ease of cleaning, re-charging, and renewing filters.

(f) Quality of construction.

(g) Time taken daily by entrant in cleaning, re-charging, and in changing filtering and drying materials during period of road test.

(h) Smell and other defects observed during road test, with special reference to continued burning in high wind and when jolted.

(i) Absence of leakage, and power to retain charge.

FRENCH 1906 RACE.—The Fontainebleau Circuit. On the outskirts of Arbonne. The course passes along the road to the left.

Lamp Trials.—The Lamp Trials which are to be held by the A.C.G.B.I., in February, 1906, will be carried out in connection with the 4,000 Miles Tyre Trials. The regulations have now been issued, and they provide that the lamps entered shall be chosen from stock by the club. No cleaning or re-charging will be permitted throughout the trial, except in the dépôt before or after a day's run; but Observers will be permitted to re-light and re-charge as required, after noting the time and cause of any failure. Twenty-five per cent. of the entry fees will be transferred to a common fund, to be distributed among the tyre entrants as a contribution towards the cost of running the cars. The club reserve the right to accept one entry only of each type in any class if the number of cars should prove inadequate. Entries close January 31st, 1906. The classification is as follows:—

(k) Condition of generator after road and other tests.

(l) Cost of gas supplied. [N.B.—This cost will be reckoned on a basis which includes the cost of the generator or equipment.]

Class B.

(a) Candle-power of the central beam of the lamp per cubic foot of gas consumed per hour.

(b) Distribution of light over an angle of 35 deg. in a horizontal plane. [N.B.—The ideal distribution of light will be taken to be that giving a uniform intensity of illumination along the hedges bordering a 20 foot road from a point 10 yards in front of the lamp to the maximum distance of effective illumination.]

(c) Non-tarnishing of reflector.

(d) Freedom from fracture of exposed glass under atmospheric conditions.

(e) Cost of replacing front glass, and its liability to fracture.

(f) Quality of construction and of attachment fittings.

(g) Ease of cleaning reflector, lens, and burners, and of renewing filters (if any).

(h) General appearance and ease of cleaning exterior.

(j) Price.

(k) Condition of lamp after trial.

Class C.

All the points enumerated under Classes A and B will be taken into consideration, with the exception of (c) under Class A.

Oil Lamps.—Classification: (D) Headlights; (E) Side lamps; (F) Tail lamps.

The following points will be taken into consideration in making the awards:—

- (a) Candle-power of the central beam of the lamp.
- (b) Time of burning with one filling of the reservoir.
- (c) Ease of filling, trimming, and lighting.
- (d) Attachment of reservoir to lamp (where reservoir is detachable), with reference to security of attachment and prevention of leakage.
- (e) Device for raising and lowering wick, and means for locking it.
- (f) Non-tarnishing of reflector.
- (g) Quality of construction and attachment fittings.
- (h) General appearance and ease of cleaning.
- (i) Freedom from fracture of glass under atmospheric conditions.
- (k) Absence of defects observed during road test, with special reference to continued burning in a high wind and when jolted.
- (l) Condition of lamp after trial.
- (m) Price.
- (n) Means afforded to driver for ascertaining if the tail lamp be alight in Class F.
- (o) Adaptability, in Class F, to the purpose of illuminating the number plate, without unduly projecting behind it.

Voiturette Record.—On December 14th, a successful attempt on the record of the world for the flying kilometre for voiturettes was made by Barriaux on a Vulpes car. His time was $33\frac{2}{3}$ secs., against the previous record of $36\frac{1}{2}$ secs. The standing kilometre was covered in 47 secs., and the standing mile in 1 min. $10\frac{1}{2}$ secs. (previous record 1 min. $13\frac{2}{3}$ secs.). The timing was by official timekeepers, on the officially-recognised Dourdan Road. This Vulpes voiturette was fitted with "Electric" tyres, Longueuaire carburettor, Eisemann magneto ignition, and a 18-24-h.p. Janus motor.

Gordon-Bennett Cup.—At the International Conference of Automobile Clubs, held in Paris on Monday last, it was decided that no race for the Gordon-Bennett Cup should take place in 1906. At another conference to be held next July, at the time of the big French race, it is to be considered whether the race shall be resumed with modification in 1907. In the meantime the A.C. de France will retain the Trophy.

Italian Events in 1906.—The route of the big Tourist Car Trial, in connection with the Milan Exposition next year, which will be over a distance of 5,000 kiloms., to be run off in ten days, will start from Milan and go south to Naples and Rome, passing through most of the leading cities of the peninsula. Many of the roads selected are of an extremely severe character and calculated to thoroughly test the cars. Already 120,000 francs have been apportioned as prizes, and the trial, is to be under the patronage of the King of Italy.

THE Paris Voiturette Trials, under the auspices of *L'Auto*, for next year are announced to take place during the latter part of April. Some modifications will be introduced into the rules, which are to be issued almost immediately, to enable manufacturers to prepare well in advance for these trials. The unfortunate troubles in connection with malicious strewing of nails in the path of the competing cars, which took place on the last day of the trials which were held recently, have, it is announced, prevented the A.C. of France from officially taking note of the performances of the cars.

MR. CLIFFORD EARP is now in the United States, and is looking forward to repeating his great successes of last year in America with the 6-cylinder Napier car. He will be very prominent at the Fourth Annual International Ormond and Florida Beach Races, where the car is entered for no less than ten events, viz.: The 100 miles international for the Minneapolis Cup, which must be won twice to obtain permanent possession. The race will be run with turns on the beach. One mile international for the Sir Thos. R. Dewar Trophy; the five miles, the ten miles, and the fifteen miles open championships; the one mile, the five miles, and the ten miles heavy weight championships; one mile record trial (heavy weight), and the one kilometre record trial (heavy weight).

**CLUBS AND ASSOCIATIONS.**

Ladies' A.C.—At the last of Mr. R. Sedgwick Currie's technical lessons on the internal combustion engine on December 13th, there were not as many members as usual present. This lesson dealt with the various causes for breakdowns, &c., and Mr. Currie was able to give many practical hints for their remedy. Among other things, he said that if members wished to prolong the life of their tyres they would be careful never to round a corner with the clutch in, as by so doing a very severe strain would be put on the back wheel tyres which would soon result in these being worn flat. When tyres are to be put away for the winter, Mr. Currie advised that they be hung in a cool, dark, and yet dry room. Dark, because rubber invariably hardens, and perishes when kept in the light. A moist or a very warm atmosphere will also cause it to harden quickly.

The L.A.C. Gymkhana will be held in the grounds of the Ranelagh Club on the 30th of June, 1906.

Scottish A.C.—A meeting of the general council of the club was held on the 14th inst., Mr. George Macmillan, chairman of the Eastern Section, presiding in the absence of Mr. Henry M. Napier, chairman.

It was reported that Sir John Macdonald, Lord Justice Clerk, and Mr. R. J. Smith, general secretary, had appeared before the Royal Commission on the Motor Car Acts, and had tendered evidence with special reference to matters affecting the automobile movement in Scotland.

A scheme for the constitution of a department, associated with the club, to comprise the makers and users of heavy and commercial vehicles was outlined and approved.

An application by the Western Section to conduct a Scottish Reliability in 1906, on lines somewhat similar to that conducted by them in May last, was approved.

The decision of the High Court of Justiciary in the case of Bell v. Mitchell was reported. It was considered that this decision emphasised the necessity for obtaining an alteration in the law which bars appeals under motor car cases in Scotland where the fine does not exceed £10.

Arrangements are being made, in conjunction with the A.C.G.B.I., for the conduct of Examinations for Driving and Mechanical Efficiency Certificates being held in Scotland about the end of January next. Detailed information on the subject will be issued shortly. The Examinations, it is expected, will be held in Glasgow and Edinburgh and other centres where the number of applications from the localities warrants. It will facilitate arrangements if, meantime, intimation were made of the names and addresses of probable candidates. Members of the Scottish Automobile Club and other automobilists are requested to bring the matter before the notice of their drivers. Communications on the subject should be addressed to Mr. Robert J. Smith, General Secretary, Scottish Automobile Club, 59, St. Vincent Street, Glasgow.

North Yorkshire Automobile Association.—At a meeting of automobilists held at York last week, it was decided to form an organisation under the above title, to be affiliated to the Motor Union. The draft rules were submitted and approved, the subscription being fixed at one guinea per year. Lord Wenlock was elected president, the Marquis of Ripon, the Marquis of Zetland, and the Earl of Lonsborough were elected vice-presidents; Mr. F. Ware (York), hon. secretary; and Mr. Edwin Gray (York), hon. treasurer.

AERONAUTICS.

The Wright Brothers' Experiments.—What may be regarded as a modified confirmation of the rumours of the Wrights' successes, is recorded by M. Frank Lahm, who, as a member of the Aero Club, has, like everybody else, been greatly interested in the matter. M. Lahm has correspondents in America, and on hearing vague rumours about the Wright experiments, he wrote on the 25th of November to one of these, M. Bierce, to ask him if he could find out anything on the subject. M. Bierce replied that all he knew was that two young men of the name of Wright had been carrying on experiments of the kind referred to for some time, which had been alluded to, to a certain extent, in the papers, but that these experiments had taken place at a distance from Dayton in a very retired spot. This, of course, might refer perfectly well to the prior experiments of the Wrights with which all the world is acquainted. But a more direct confirmation comes from another source. On the 1st of December, the same M. Lahm telegraphed to a Mr. Weaver, of Dayton, and received from him the following reply:—"Dayton (Ohio), 3 Décembre 1905. *Prétentions complètement vérifiées . . .*"

As we understand that M. Lahm explained in his cablegram to Mr. Weaver what the assertions in regard to the Wrights' exploits were, his cablegram in reply would certainly appear to afford a certain modified amount of confirmation.

In support of this view, it must be remembered that the Wrights have never been men to rush into publicity prematurely. No one knew anything about their first classical series of gliding experiments until they communicated them to the Western Society of Engineers, and even Mr. Chanute, who was acquainted with them, kept silence about them. It must also be remembered that they have never hitherto pretended to accomplish more than they have actually effected. In the autumn of 1903—the date of the last personal communication the world has had from them—they accomplished free flight with a motor-driven aeroplane (of upwards of eighty yards through the air, which occupied exactly half a minute), and they then packed up their apparatus and went home, saying to one another that they were convinced that the age of the motor-driven aeroplane had come. Since then the world has had from them—absolute silence. Is it to be believed that enthusiastic experimenters who have accomplished what we know them to have accomplished—free gliding flight on an extended scale, and the first free flight *from the ground*, of a motor-driven aeroplane carrying an aeronaut, which the world has ever seen—have been doing absolutely nothing since the autumn of 1903? The supposition is opposed to all we know of human nature. Men who have done what they have done have most certainly accomplished more, even if they have been killed in the attempt, or have committed suicide in consequence of failure. But they are still alive. In fact, everybody interested in aeronautics has been waiting to see what they would do, and nearly everybody has been certain they would do something great. One corner of the curtain having now been raised, we think the Wright Brothers should make an authoritative pronouncement to one of the technical papers, either on that or this side of the Atlantic, which would make a clean breast of the whole business, and set anxiety at rest. Let us trust that some such revelation will soon be vouchsafed.

ANOTHER confirmation, for what it is worth, of what we may at present be excused for entitling the "Wright legend," has been further provided by *L'Auto*. Our contemporary has a collaborator and correspondent in New York, of the name of Robert Coquelle, and since the Wright legend has been generally promulgated the paper instructed M. Coquelle to proceed to Dayton and ascertain, if possible, what truth there was in the various rumours. This M. Coquelle accordingly did, and despatched to his paper the following telegram (published in *L'Auto* of the 14th), dated from Dayton: "The Wrights have refused to show me their apparatus, but I have succeeded in seeing and questioning a number of credible witnesses. It is impossible to doubt the success of the experiments announced." Our contemporary will, of course, ultimately receive, and doubtless publish, letters with details. So far, therefore, it will be observed that we have now a third confirmation, as far as it goes and for what it is worth, of the statements that have already appeared. The situation is distinctly silly, particularly as it seems more and more impossible to deny that there must be at least a basis of truth in the statements promulgated. In the name of all aeronauts, at present tortured by curiosity, we would once again invoke the Wright brothers to issue an authoritative statement of what they really have accomplished or not accomplished! Even if they have only failure to chronicle, no one will think any the worse of them. They have done too much to be ashamed to acknowledge a defeat!

APROPOS of the alleged sensational performances by the Wright brothers, several papers have published so-called illustrations of their apparatus. These are invariably reproductions of the original gliding machine with which the great glides in 1902 were effected, and which we reproduced fully about the time of those successful exploits. It cannot be too generally borne in mind by the public interested in the subject, that this is *not* the machine with which the first free motor-propelled flight of November, 1903, was effected.

OUR French contemporary, *Le Genie Civil*, contains in its issue of December 9th an excellent illustrated article dealing with the recent performances of the Lebaudy airship, giving the itinerary of the tours from the town of its birth to the camp at Chalons. The present structure of the great airship is also illustrated by careful line drawings, and the shed constructed to accommodate it at Toul, half of which is formed by a deep excavation in the ground, is also shown. The various exploits which were chronicled at the time they were carried out, in THE AUTOMOTOR JOURNAL, are described, and the article in question forms an important and succinct *résumé* of last year's performances of the Lebaudy airship.



MOTOR CYCLING.

THE first quarterly trial of the Auto-Cycle Club is announced to take place on January 20th.

FOR the International Cup Race for motor cycles, June 29th has been selected for next year. The race will take place in Austria, the country at present holding the trophy.

M. RIVIERRE completed at Paris on the 14th inst., on a Mototri Contal, 6,500 kiloms. in seventeen days—a severe test embracing every variety of road, hilly and flat, throughout France. He reports that he has used the same set of tyres during the entire run.

A RICHARD-BRASIER CHALLENGE CUP.—On Saturday last, at Leicester, there was quite a large gathering of privately owned Richard-Brasier cars, when the well-known British agents—Messrs. Mann and Overton—awarded a 30-guinea silver challenge cup to the owner of the best turned out car. At a dinner given by the firm on the previous evening, to which we travelled down luxuriously from London on one of the new 40-50-h.p. models, the intention was announced of making an annual event of this very pleasant function, and of thus taking advantage of a very practical method of encouraging owners and drivers to interest themselves in the condition of their cars. On this occasion, the cup was awarded by the judges—amongst whom was Mr. Alan McAlpin, the Hon. Sec. of the Leicestershire Club—to Mrs. S. H. Akroyd of Waverton, Woburn Sands, for her 16-20-h.p. vehicle, which is seen on the extreme right; the driver was presented with the £5 note, which also forms a part of the scheme.

Clear the Way!—We quite recently drew attention to the present day inadequacy of the "Hi! hi!" with which the firemen of the Metropolis attempt to clear the way before them in our crowded streets, particularly when associated with motor cars conveying Brigade officers. When general noise was less, the method was perhaps effective, but it has long ceased to be so, and we pointed out that something in the way of a gong or bell would be more effective. We are interested, therefore, to find that this innovation has been adopted by the Metropolitan Fire Brigade, the chief officer of which has recommended the purchase of 150 large bells.

THE development of the motor 'bus is leading to a regular rush to appropriate names—following the lead of the "Pioneer," "Vanguard," and "Arrow" lines—that are likely to be considered popular, of the kind which recall the old knife-board omnibus days, when we had Westminster "Monsters," Britannia "Marvels," and Islington "Favourites" (of which, by the way, the latter still survive) flaunting their weird devices in all directions. The method adopted is usually to register a company with £100 nominal capital and assume the names desired, and amongst names so "earmarked" for future exploitation we notice "Mercury," "Rocket," "Dart," and "Express."

SOME time ago, we alluded to the shocking condition of the stretch of road treated with tar at Byfleet. In the neighbourhood of Cobham, another stretch of road has been similarly treated, and appears at present to be even worse than the Byfleet stretch, and exceptionally slippery. At any rate, attention was called to the matter by Mr. W. Christmas, at a recent meeting of the Surbiton Urban District Council, and it was pointed out that a number of motor car accidents had occurred on the stretch of road treated for dust prevention owing to this cause. Instructions have been issued to the surveyor to erect notice-boards pointing out that the stretch of road in question is dangerous for motor cars. Will they be called Christmas greetings?

Petrol Motor Railway Coaches.—The London, Brighton and South Coast Railway are about to introduce petrol motor coaches on their branch line between Brighton and Kemp Town. They will be capable of holding forty-eight passengers and will make twenty-nine journeys each way every week-day and twenty-six on Sundays. A platform has been erected between Kemp Town and Lewes Road, to be known as Hartington Road halt, where all cars will call to take up and set down passengers. This service will, of course, replace that now in existence.

THE marriage between Mr. Alexander Winton, the President of the Winton Motor Carriage Company, of Cleveland, Ohio, U.S.A., and Miss La Belle McGlashan, of Paisley, was duly solemnised on December 12th at Glasgow. Mr. Winton was born in Scotland, and spent part of his boyhood in the second city of the British Empire.

ON Saturday last, Mr. Henry J. Lawson was released from Wormwood Scrubbs Prison after having served the sentence of twelve months' imprisonment which was passed upon him about this time last year, when in conjunction with Mr. Ernest T. Hooley, he was indicted at the Central Criminal Court with having obtained money by false pretences from Mr. A. J. Payne. Mr. Hooley, it will be remembered, was acquitted. Mr. Lawson, who was looking well when he emerged from his confinement, was met by his son and two friends on a motor car. Mr. Lawson, we understand, has during his incarceration been confined mainly to the infirmary, and, needless to say, his active brain has not been idle during his unfortunate experience. It is stated that he has perfected two inventions in connection with the motor industry, both of which he proposes as early as possible to place upon the market. In addition, a book is to be issued by him early in the New Year on his experiences of prison life, facts which point to there being no loss of energy in Mr. Lawson by reason of his enforced absence.

"IT is about time we heard of the West-End heiress who has married a motor-'bus conductor."—*Financial News*.

QUITE a considerable number of members of the new Government are either automobilists or favourably disposed towards the movement. Amongst car owners may be reckoned the Marquis of Ripon, Lord Aberdeen, the Earl of Crewe, Lord Tweedmouth, Earl Carrington, Sir Edward Grey, Sir Robert Reid, Mr. Asquith, Mr. Herbert Gladstone, and Mr. L. V. Harcourt. Among the members of the Ministry favourable to the movement, though not actually automobilists themselves, may be reckoned the Earl of Elgin, Mr. Haldane, Mr. Lloyd George, and Mr. Sydney Buxton.

THE London County Council has agreed to adopt the proposed scheme for establishing ambulance services to deal with street accidents suggested by the General Purposes Committee. This scheme involves providing two ambulance stations, motor ambulances, and wheeled litters, and a system of giving calls by means of street call-posts fitted with telephones. The provisional estimate of the expenditure which would be involved in this beneficent scheme is £5,200. One of the proposed stations is to be at Bridge Wharf, Lambeth, and another near Charing Cross.

A REPORT of accidents made in New York by Laffan's Agency points out that all sports exact their tale of accidents: football during the year 1905 claiming 21 victims, base ball 12, horse racing 9, pugilism 6, horsemanship 4, and gymnastics 2. It is noteworthy that the number of accidents attributed to the automobile have not been regarded as worth recording.

MOST people would think that motor car goggles and masks were such unbecoming disguises that no one would willingly assume them unless compelled by the exigences of the road. That an elaborate *Bal masqué* should be arranged in which the guests are to disguise themselves in motor goggles till midnight, certainly strikes one as belonging to the category of those tasteless peculiarities so characteristic of the modern world.

A POLICE case, somewhat similar to the Leeds case which we mention elsewhere, though not involving a charge of perjury, was that of Charles Poulett, who was fined £2 and costs at Whitchurch, Shropshire, for being found, in a perfectly contented state, at midnight, a mile outside Whitchurch in an intoxicated condition asleep in his car, which was partially overturned and fast in a bank. It took two hours to extricate the car from its difficulties.

Last week we give a few particulars of the very successful Fancy Dress Ball which took place in Coventry Assembly Rooms amongst employees of Messrs. Humber, Limited. The function was a huge success, there being nearly 300 dancers and about 800 spectators. The success was the more creditable from the fact that the whole of the arrangements were in the hands of the Humber employees at the Coventry Works. We are able to give above a flashlight photograph of the scene in the ballroom, when the dancers were specially grouped for the purpose of the picture. A special feature was the giving of prizes for the best lady's and gentleman's fancy dress.

the various features of his triumphant experiences, which, of course, mean the many triumphs of the Michelin tyres.

AT his recent visit to the Midlands His Majesty King Edward joined the shooting party at the Clowne Hills, near Welbeck Abbey, in his motor car. The Royal car took up a position in the direction in which the game was being driven, and the King shot from the seat of his car without having to take the trouble to disembark, and, we understand, enjoyed very excellent sport.

A SENSIBLE correspondent of the daily Press points out the great importance of teaching children in elementary schools the ordinary rules of the road and the necessity of keeping out of the way of fast moving traffic. The matter has been put before the Secretary of State, and the letter written by the correspondent to whom we refer has been laid before the Board, but so far nothing has been done.

THE PARIS SALON.—A Panhard Touring Car, which has the driver's seat entirely enclosed both in front and at the side. This is one of the few novelties in carriage construction at the Salon.

KAISER WILHELM has favoured the Fiat Company with an order for a 70-h.p. car, this being the third of the same make which the Emperor has indulged in.

THE neighbourhood of Chertsey has earned for itself an unenviable reputation. It appears that the motorists passing through the neighbourhood are specially liable to be greeted with salvos of stones from the small boys which abound on the Chertsey Road. One of them was recently brought before the police court and fined 10s. for this very objectionable method of amusing himself.

FOR a long time Mr. Edison has stoutly maintained that the car of the future was going to be electric, provided, of course, with his special form of battery. He would never give in, in words, upon the subject. Now, however, it is reported that he has recently taken delivery of a 1906 Grout 4-cylinder touring petrol car. Facts speak louder than words, and we may conclude that even the inventor himself does not now think that the Edison-battery-propelled electromobile is destined to run everything off the roads of the Great Republic of the West.

EVERYONE familiar with the advertisement hoardings on the Continent and some of our principal towns knows the comic figure of "Bibendum," a personality constructed entirely of motor-car pneumatic tyres, which has become almost as amusing a personality as "Sunny Jim" was some time ago. "Bibendum" has become a sort of trade mark to the Michelin Tyre Company, and they have, with the Christmas season, published an amusing skit, illustrated in colours, of his origin, and of

SIR T. BROOKE HITCHING, who is convinced that the tramways of the London County Council do not pay, uttered a solemn warning last week, in reference to the proposed further prodigal expenditure on tramways of the Council, pointing out that the Council had made no allowance for the effects of motor 'bus competition on tramway receipts. Every £100,000 spent on tramways will result, according to Sir T. Brooke Hitching, in a proportion of loss. Lord Welby also warned the Council that they were overstraining their credit.

WE are requested by the solicitors for Mr. W. Clifford Earp, the well-known racing-car driver, to state that their client has never had any connection with the "Bettoruss" Non-Skid Tyres, Limited, and that the circular and testimonial recently disseminated in connection with this tyre, mentioning a Mr. Earp, do not in consequence in any way refer to him.

A new type of "Station Car," of which we give a photograph, has recently been placed on the market by the Wolseley Motor Car Company, to meet the demand for a vehicle equally suitable for the carriage of luggage from country houses and for reaching shooting lodges at a distance. It is particularly adaptable for the latter purpose when a number of guns and dogs have to travel a long way. For this purpose the car body has been built extra wide and low. A 12-h.p. motor is fitted, and even the steepest hill can be easily surmounted with full load.

COMPANY DOINGS.

In the report of the British Electric Traction Company, it is announced by the directors that satisfactory progress has been made by the British Automobile Development Company, in connection with which works have been erected at Loughborough for the manufacture of motor omnibuses and heavy haulage vehicles. They anticipate a large demand for British-made vehicles of this description, and they believe that the Automobile Company will be in a favourable position to meet it.

At the Dunlop Pneumatic Tyre Company's Annual General Meeting, held last week under the Chairmanship of Mr. Harvey du Cros, the Chairman, in dealing with the motor-tyre side of the Company's business, announced that they had not been disappointed in looking for large and satisfactory results. They were now making a splendid tyre and were quite unable to meet the demand, but they hoped to overcome this difficulty when their mill was completed. He referred with justifiable pride to the action of their company in connection with motor tyres in the Vanderbilt Race in America. At a moment's notice they had shipped tyres to America, from one of the Dunlop Company's works in Europe, to take part in the Vanderbilt Race, and their efforts had met with unexampled success, from the fact that the tyres with which they supplied the winning car went through the race without any difficulty whatever. This was accomplished in the face of the many difficulties which racing provided in the severe strains put upon tyres, as the cars skidded round the corners instead of being driven round. The Chairman further referred to the large development which is taking place in connection with solid tyres for motor omnibuses, and he was glad to say that the company was in a strong position to fulfil any demand in this direction made upon it.

The Star Cycle Company, Limited.—Following the passing of the dividend on the ordinary capital for seven years, and with preference interest four years in arrear, the shareholders of this Company, in spite of the directors not recommending the payment of any dividend for the past year, have reason to be pleased with the decided improvement in the outlook of the Company's affairs, which is set out in the report for the year ending September 30th last. The report states that the trading profits for the year amount to £7,370 and the net profits £4,123, making, with the balance brought forward from last year, £1,335, a total to the credit of profit and loss of £5,458. Profits from the cycle section have not been good, but the directors anticipate a very satisfactory result for

1906. Business in the motor section is highly satisfactory from every point of view, and the directors are confident of even better results therefrom in the immediate future. It is proposed to place to reserve account £1,000 (bringing that fund up to £10,000), and after paying directors' fees to carry forward the balance of £4,058.

Singer and Co., Limited.—Mr. George Singer presided at the annual meeting of shareholders of this company at Coventry on Monday last. The accounts showed a net profit of £8,796. After providing for the debenture interest, there remained £796 in reduction of last year's deficiency, leaving it at £4,960. The chairman said that the profit on the cycle department had been absorbed in the outlay upon the preparations for the manufacture of motor cars. As to the coming season, there would be only very slight alterations in the standard pattern, but it had been decided to make motors up to 28-h.p., having four or six cylinders of the vertical type, and special attention would be given to the production of a car for commercial purposes.

NEW COMPANIES REGISTERED.

Automobilia (Limited), 532, Oxford Street, W.—Capital, £20,000 in £1 shares.

J. Brittain Pash (Limited), Market Road, Chelmsford.—Capital, £14,000 in £1 shares (7,000 six per cent. preference). Object, to acquire the business of agricultural engineers, cycle and motor manufacturers, carried on by J. B. Pash at Chelmsford, Colchester, Braintree, Bishop's Stortford, Romford, and Saffron Walden, and also shares in the Briton Cycle Company, Limited. First directors: J. B. Pash and D. J. Pash.

Express Motor 'Bus Company (Limited).—Capital, £100 in £1 shares.

Mann and Overton (Ireland) (Limited), 7AB, Lower Belgrave Street, S.W.—Capital, £2,100 in £1 shares. Object, to acquire the exclusive agency for Ireland of all motor cars and spare parts which Mann and Overton, Limited, sell there. First directors, J. J. Mann, J. T. Overton, and E. M. Stirling.

Pearson and Pearson (Limited), 52, Elm Grove, Southsea.—Capital, £2,000 in £1 shares. Object, to carry on the business of manufacturers of motors, motor cars, &c.

Pedlar Brake and Two-Speed Gear Company (Limited), 160, Temple Chambers, E.C.—Capital, £100,000 in £1 shares. First Directors, C. E. Hare, H. A. Johnston, G. M. De Vere Beauclerk, M. Pedersen, H. S. Close, J.P., and A. G. G. Hervey, J.P. General manager, W. G. James (Crypto Car and Cycle Company).

The number of commercial travellers' motor carriages which are now seen in regular service in London and the provinces is remarkable, it being found by experience that vehicles of this nature completely pay for themselves, by the extra advantages with which they provide travellers, in an incredibly short space of time. Messrs. Argylls London, Limited, have sent us a photograph, seen above, of one of their new type of vehicles of this class which they have recently supplied to Messrs. Asprey and Co., of Bond Street. The inside of this van is fitted with shelves, with two upholstered seats in the rear portion, access being gained also from the rear. Otherwise the van is throughout one of the Argyll standard 10-12-h.p. vehicles. With its normal load this vehicle has been tested up Fitzjohn's Avenue on its second speed, which it takes quite readily.

COMMERCIAL POINTS.

WE recently mentioned that a company was being formed in Italy for the manufacture of Napier cars and marine motors. This has now been arranged under the title of San Giorgio, Societa Anonima Italiana. The Duke Leopold Torliona is President of the Board of Administration, and Chev. Attilio Odero is the Vice-President. Chev. Pietro Micheli is the Managing Director, and other Directors are Duke Visconti di Madrone, Count E. Nicolis of Robelant and Marquis Franco Carrego, Prince of Lucedio, whilst other notabilities appear amongst the founders and the rest of the Directors. Until the new Company's factory is in running order, an order for a considerable number of British-built Napier cars has been placed, and altogether the powerful combination which has been formed for exploiting cars on British lines in Italy, is a very flattering testimonial to the splendid position which has now been attained by British-designed cars.

THE "Deasy" car is the name of a new 4-cylinder 16-h.p. British-made car, for the manufacture of which an up-to-date factory will shortly be erected at Coventry under the guidance of Capt. Deasy. Capt. Deasy will have associated with him as designer and works manager, Mr. E. W. Lewis, who has in the past been known prominently, firstly in connection with the Daimler Company, and latterly with the Rover Company. Mr. A. C. Hills will be in charge of the commercial side of the business.

At the Birmingham Motor Car Show to be held at Bingley Hall, January 19th to 27th, space has, we learn, been secured for exhibiting some fine examples of British and foreign cars and commercial motor vehicles. The exhibition has received excellent support from

the trade. Invitations, accompanied by free tickets, will be sent by post to every motor car and motor cycle agent within a 60-mile radius of Birmingham, and in addition to all professional and business men and likely buyers of a motor car in the Midlands.

By special permission the band of H.M. 1st Life Guards has been engaged, and will perform daily.

Enquiries in regard to the exhibition should be addressed to Geo. W. Owen, Secretary, Exhibition Offices, 57 and 58, New Street, Birmingham.

At the Paris Salon no less than 896 wheels are fitted, we learn, with Continental tyres.

MR. E. H. LANCASTER, managing director of the Clement Motor Company, Limited, had a letter addressed to him at 3, Lancaster Street, Lancaster Square, W.C. It found him. His address, as is generally known, is 3, Leicester Street, Leicester Square. There is much in Shakespeare's query, "What's in a name?"

MESSRS. CHARLES JARROTT AND LETTS, LIMITED, have appointed Messrs. John Croall and Sons, Limited, of 126, George Street, Edinburgh, sole selling agents for De Dietrich cars in Scotland.

THE Duke of Portland and the Countess of Warwick we hear have selected 40-h.p. De Dietrich cars for their use during the coming year.

H.M. THE KING OF SPAIN has just placed an order for a 24-40-h.p. Fiat car.

BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.I.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application; the second, at the end, the date of the advertisement of the acceptance of the complete specification.

22356. 17th October, 1904. Improved Automobile. Robert Goldschmidt, 54, Avenue des Arts, Brussels. Date under International Convention, 17th October, 1903. The object of this invention is to effect the direct transmission between the shaft of

current by making contact with the metal sector, *g*. The point, *q*, of this sector being insulated, it follows that if the handle, *i*, be brought to *q* the ignition circuit will be broken. The control of the motion forwards and backwards of the motor by the driver

28,969. A. S. F. ROBINSON. Wheels.
29,100. P. J. NEATE. Spring wheels.
Published December 21st, 1905.
28,977. T. THORNCROFT AND J. I. THORNCROFT AND CO., LTD. Oil separators for vapourisers.
29,040A. MAXWELL-BRISCOE MOTOR CO. Automobiles.

Applied for in 1905.
Published December 14th, 1905.

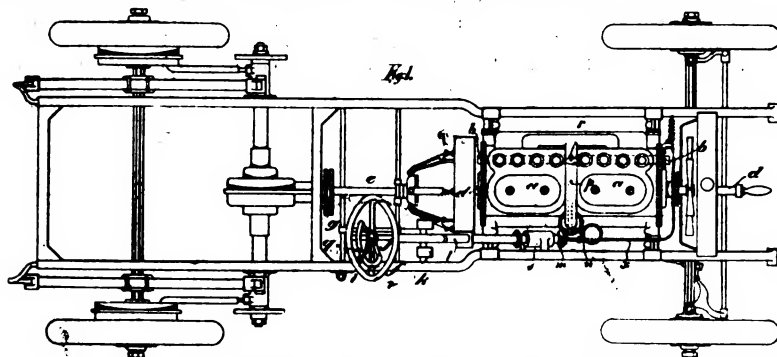
358. L. J. LE PONTAIS. Ignition.
2,257. E. G. MEYER AND J. ROTHARDT. Starting mechanism.
2,970. G. BARDET. Elastic wheel.
3,026. W. E. HALLADAY. Radiators.
4,001. H. D. DIXON. Hoods for cars.
5,855. J. & E. E. FULLMAN. Tread bands for tyres.
6,337. J. A. TORRENS. Magnetic sparking plugs.
7,237. H. LUCAS AND W. H. EDWARDS. Horns.
7,825. D. PURVES. Non-skid devices.
10,650. H. B. STILZ. Intl. combn. engines.
10,808. M. E. CLARK. Explosion engines.
12,264. T. GANET. Carburetors.
12,711. W. HAGGULEY. Tyres.
12,711. G. MULLER AND A. BEWIG. Tyre repairing.
12,768. H. GRADE. Inlet valve.
16,084. C. E. CAVE-BROWNE-CAVE. Rims and tyres.
17,775. E. BATAULT. Starting apparatus.
19,275. G. E. J. ALPHANDERY. Removal of valves.
21,285. Published December 21st, 1905.

2,281. C. L. HARRISON. Non-skidding appliance.
2,314. J. S. FAIRFAX. Motor vehicles.
2,745. TANGVE TOOL AND ELECTRIC CO., LTD., AND C. PENDLEBURY. Change gearing.
2,848. J. C. AND J. T. AKERMAN. Attaching rubber tyres.
3,220. W. J. A. DONALD. Leather covers for tyres.
3,540. T. J. RIDGE. Change gear.
4,270. G. FLOQUET. Elastic wheel.
6,802. WOLSELEY TOOL AND MOTOR CAR CO., AND A. A. REMINGTON. Self acting induction valves.

10,128. W. POLLIN. Driving belt for motor cycles.
12,044. M. BIRKITT. Automobiles.
12,377. J. PAGE AND F. H. NORRIS. Road charts or maps.

15,104. C. F. SOUTHCOOT AND P. PARKER. Supplying of petrol.
15,725. H. P. SCHREIBER. Adjustable seat pillars for motor bicycles.
16,713. C. DOLLINGER AND B. GOLLNER. Spring wheels.

16,728. C. O. BARNES. Steering mechanism.
17,443. C. SCHÖPNER. Variable speed gearing.
17,565. T. W. FLOVY. Speed indicators.
19,540. W. VAN DER HEYDEN. Solidification of hydrocarbons, such as petroleum and benzene.
22,234. FRASER AND CHALMERS, LTD. AND F. L. WHITMORE. Throttle-valves.



the motor, which is one of four cylinders, and the shaft which controls the differential gear or the driving shaft, while at the same time it admits of backward motion by the use of a special arrangement for the distribution and ignition, rendering the motor reversible. There are three figures. Fig. 1 is a plan of the arrangement. In the four-cylinder explosion motor, *a*, the distribution is controlled by a shaft, *b*, having double cams with inverse projections and an intermediate neutral part which admits of reversing the direction of travel through a clutch, *c*, with friction plates. The clutch is controlled by the pedal, *d*, for the purpose of coupling directly the shaft, *e*, of the motor to the shaft, *f*, actuating the differential gear. A longitudinal displacement of the distributing shaft, *b*, towards the front or the rear can be obtained by a tubular rod located in the steering-wheel tube, *g*, and rotatable therein. At its upper end, above the wheel, *h*, the rod has the little handle, *i*. At its lower end, beneath the box, *j*, the rod bears a cone wheel, *m*, gearing with the cone wheel, *n*, of the transverse shaft, *p*. A fork, *r*, on the other end of this shaft engages the cam shaft, *b*, moving it to and fro under the control of the handle, *i*. The ignition ring, *q*, of well-known type, and having four internal contacts, is mounted concentrically to the shaft, *b*, towards the end thereof, which end bears two keys or cams for the distribution of the ignition, one for the forward and the other for the backward motion. These keys are respectively brought into the track of the contacts by shifting the shaft, *b*. The stop, *j*, which forms part of the handle, *i*, closes the circuit of the ignition

is effected as follows:—For the first start the motor is started by hand in the usual manner, the handle, *i*, being pushed down towards the right, thus giving a full admission for the forward motion. In order to reduce the speed, the handle, *i*, is moved towards the neutral point, *q*. In order to stop the motor in such a position that it can restart by itself at the contact the handle, *i*, is pushed downwards to the bottom in the direction of the full admission, the brake is taken off, the handle, *i*, is brought to the point, *q*, which cuts off automatically the current by means of the interrupter, *j*, and the handle, *i*, is then brought rapidly to the point, *q*. All the valves then remaining closed, the four cylinders are filled with explosion gas. When it is desired to again start the motor for the forward motion the handle, *i*, is pushed down to the left, the handle, *i*, is also pushed towards the left and the motor will start in the backward direction, because ignition will take place in one of the cylinders. The control is thus effected by moving longitudinally the half-speed shaft with its cams and ignition gear.—November 29th, 1905.

Patent Specifications Published.

Applied for in 1904.

Published December 14th, 1905.

22,356. R. GOLDSCHMIDT. Automobile.
25,015. W. BENTLEY. Anti-slip device.
25,603. F. L. MERRITT. Carburetors.
26,052. A. TURNER. Speed indicators.
26,431. P. BORT. Gas or explosive vapour engines.

The Automotor Journal, December 30th, 1905.

THE AUTOMOTOR JOURNAL

A RECORD AND REVIEW OF APPLIED AUTOMATIC LOCOMOTION.

Circulates amongst Makers and Users of Motor Cars, Cycles, etc., in the United Kingdom, the Colonies, and the Continent.

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DIARY OF FORTHCOMING EVENTS.

British Events.

1906.		
Jan. 15	...	" Indicated and Horse Power of Motors," by Prof. Archibald Barr, D.Sc. (Scottish A.C.).
Jan. 15-20	...	Brighton Automobile Exhibition.
Jan. 17	...	Auto-Cycle Club Dinner.
Jan. 19-27	...	Birmingham Motor Show.
Jan. 20	...	Auto-Cycle Club Quarterly Trial.
Jan. 26-Feb. 3	...	Crystal Palace Motor Show.
Jan. 26-Feb. 3	...	Edinburgh Show.
Jan. 27	...	Tri-Car Hill-Climb, Lewisham A.C.
Feb. 15	...	*4,000 Miles Tyre Trials.
Feb. 15	...	*Lamp Trials.
Feb. 9-17	...	Liverpool Motor Show.
Feb. 9-17	...	Newcastle Motor Show.
Feb. 19	...	Scottish A.C. (Western) Annual Dinner.
Feb. 23-Mar. 3	...	Manchester Motor Show.
March 9-17	...	Glasgow Motor Car Show.
March 24-31	...	Cordingley and Co.'s Motor Show.
June 30	...	Ranelagh Automobile Gymkhana (Ladies' A.C.).
Aug.	...	*Van Trials.

Foreign Events (Trials, Races, &c.).

1905.		
Dec. 31	...	Coupe de Salon, Paris (Motor Boats).
1906.		
Jan. 13-20	...	Brussels Exhibition.
Jan. 13-20	...	American A.C. Show, New York.
Jan. 17-20	...	Western Indian Trials.
Jan. 22-27	...	Ormond-Daytona Beach Races.
Jan. 26-30	...	Calcutta Motor Trials.
Feb. 3-18	...	Berlin Motor Show.
Feb. 3-18	...	Turin Automobile Show.
March 15-18	...	Vienna Motor Exhibition (A.C. of Austria).
April 1-15	...	Monaco Motor Boat Exhibition and Races.
April-May	...	Milan Exhibition.
April	...	Paris Voiturettes Trial (L'Auto).
May 6	...	"Targa" Florio (Sicily).
May 13-14	...	Tour de France (Motor Cycles and Voiturettes).
June 10-16	...	Herkomer Cup.
June 28-29	...	Kiel Motor Boat Races.
June 29	...	Motor Bicycle International Cup Race (Austria).
Sept. 10	...	Florio Cup Race (Italy).
Sept. 15-16	...	Mont Ventoux Hill-Climb.

* Automobile Club of Great Britain and Ireland Events and Papers

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PASSING EVENTS.

1905.

THE year which has just come to an end will be regarded in many respects as memorable, and in nearly all respects as satisfactory, in the history of the automobile movement. There have been few sensational developments, but progress has been very marked in every direction, and an all-round improvement has resulted. It is not generalising too much to say that the attitude of the public towards the automobile has undergone a distinct change. If there is not less hostility in certain circles, there is at least an increasing tolerance towards the new locomotion on the part of the great bulk of the public. Even in remote agricultural districts where prejudice lingers longest, decidedly fewer diatribes against the automobile are to be heard, and even when still delivered by the local quidnuncs and oracles of the village bar and village green, are less frequent and less virulent than they used to be. In short, a kind of subtle change can be recognised. It is the same sort of change that came over the country many years ago when the bicycle, after being long regarded as an objectionable innovation, began to be recognised as a permanent institution. This is perhaps one of the less tangible, but not the least important phenomena of the past year, and is full of promise for the future.

Of course, no single cause has conducted to this almost impalpable, but noticeable, alteration in public opinion, but among those which have assisted in bringing it about we think we should be right in specifying the increased demonstration of the utility of the automobile. This has been specially brought into prominence during the last year by those who had previously employed cars almost solely as a plaything, now adopting them for *bonâ fide* travel. There is all the difference in the effect produced on popular opinion by the possession by some local magnate of a machine on which he merely rushes out several times a week for a run round the country, and a vehicle which he employs to perform regular journeys either between his home and his business in town or between one part of the country and another. The pre-eminent utility of the car has thus been demonstrated more frequently than ever before, and there has been a corresponding increase in popular respect for it. One cannot help thinking, too, that the very unfair and un-English tactics adopted by the police in their dealings with motorists, which have provided many a smile (and some stronger expressions of feeling), for our readers, have assisted, as all unfairness ultimately does assist, in bringing about a reaction in favour of automobilism. Another development that has unquestionably contributed to affect the popular mind in a similar manner has been the almost phenomenal success, particularly in the Metropolis (though not by any means confined to the Metropolis alone), of the motor 'bus. Formerly, no doubt, amongst the people at large there may, perhaps, have been a tendency to associate the new locomotion with the convenience of the rich, and to regard it merely as having provided a new amusement for the moneyed classes. But the motor 'bus has brought home to the man in the street that automobilism is going to benefit him too.

When we turn to the consideration of the development which the past year has seen from the engineering point of view, we find similar cause for general congratulation. There has been little of a startling or revolutionary character in car design. But there has been an

enormous amount of work done (mostly concentrated on the further perfection of types which are becoming more and more standardised) which does not necessarily appear above the surface. We refer particularly to such subjects as the adaptation of the dimensions and strength of parts scientifically and mathematically to the precise requirements that they have to fulfil, with the consequence that those parts which require to be strong and massive have been made so, while those on which economy of material and diminution of weight can, without disadvantage be effected, have been lightened. The result has been vastly to increase reliability, and the occasions on which a car can be observed, for anything but a tyre trouble (and even those are not very frequent now) broken down on the roadside, have become very few and far between. This excellent effect has been due, no doubt, not only to the more careful calculation and utilisation of experience to which we refer, but must also unquestionably be very largely ascribed to greater care in the selection of materials, to the utilisation of high-class steels of the nickel and tungsten order (to which attention has been given from time to time in this journal), as also to the gradual elimination of the small maker who used merely to assemble engines, gear boxes and other parts made by various manufacturers into a complete car, as well as to the general tendency towards standardisation and manufacture on a large scale which has resulted from many of the leading firms in this country becoming capitalised and organised on an increased and adequate scale.

Corresponding to the tendency which we have mentioned—the more utilitarian employment of even the pleasure car—it is to be noted that the past year has seen a general movement towards the development of even higher-powered cars than last year, but designed, be it noted, not so much for greater speeds than formerly, as for efficient hill-climbing under all circumstances and for the satisfactory transport of the extra weight represented by comfortable and luxurious bodies suitable for lengthy travel. There has, however, also been a marked tendency towards the development of that very useful type of comparatively light car that has been especially encouraged by the Tourist Trophy regulations, the thoroughly well-designed machine with an engine of from 12-h.p. to 20-h.p. and seating capacity for 4 or 5 persons. Small and cheap cars of the run-about order are still comparatively few in number, and very little has been done during the year—relatively speaking—in the direction of further development. Those makers who build really good models must, however, have again reaped an excellent harvest.

Dealing with details and accessories, one may note the decided development of magneto ignition, particularly of the high-tension type. Carburettors have in general undergone but little or none of that change which was so characteristic of 1904, but there has been a tendency, wisely enough, to make brakes more powerful, to employ various types of metal-to-metal clutches in place of the leather-faced variety, and towards the adoption of improved systems of lubrication, involving principles of forced feed and automatic circulation.

Thus from the engineering and commercial points of view the year 1905 has been pre-eminently a practical one. It is not without significance, therefore, that the same year has witnessed the last (to all appearance) of the Gordon-Bennett Race. Though various attempts have

and are being made, particularly in France and America, to regalanise high-speed racing into life, there has unquestionably been a general tacit consensus of opinion that all that high-speed racing is likely to be able to teach us has already been learned, and that mere professional racing is quite useless. The result has been the elaboration of a more practical type of race which combines something of the requirements of a reliability trial—of increased stringency—with the excitement and attractive features of a race. We refer, of course, to the Tourist Trophy Race. The year 1905 will probably always remain memorable as the year of the first Tourist Trophy Race, an event which, held, as every first event must be, under more or less imperfect rules, has demonstrated that it is still possible to employ the racing principle in such a way as to be of real commercial utility. This is no small triumph to those who have organised it, for the days when lengthy reliability trials of the type which once was so useful have, for the reasons we have pointed out above, now passed away.

As regards marine motoring, the year has been to some extent a disappointment, for as yet the sport does not appear to have met with enthusiastic reception from the public. The development of the motor boat has not been altogether as rapid as might have been anticipated, though solid and substantial progress has been made in the adaptation of motor propulsion to boats of various characters. *En revanche*, as the French say, aerial navigation, as we point out elsewhere, has undergone some sensational developments, in which department we have chronicled not only the splendid performances of the Lebaudy airship, but the apparently definitive solution of free flight by mechanically-propelled aeroplanes, which there now seems no reason to doubt has been accomplished in America.

By keeping in touch with and providing a faithful chronicle and carefully considered commentary on the progress of the year, THE AUTOMOTOR JOURNAL has but continued its established policy, and it has been successful in appealing to a much wider circle of readers than ever before. In fact, the increase in its prosperity and the general recognition that it has received have been more marked this year, as compared with the relative increase in former years, than previously, which is satisfactory evidence, if any were required, that our efforts to represent not merely the social and amusing side of automobilism, but its more serious aspects, have met with substantial appreciation.

A Mistaken Project.

THE pertinacity of the gentlemen who have determined to "push" a road from London to Brighton specially confined to motor traffic is remarkable and would be admirable—in a better cause. They have prepared a Bill, and are going to bring it in in the next session of Parliament, their measure having already issued from the Private Bill Office of the House of Commons. It is styled the London and Brighton Motor Way Bill, and if it ever passes into law will enable a company to be formed and empower it to complete a special road, lighted by electricity, from London to Brighton, which will be restricted entirely to motor traffic, and electricity will be supplied for propelling any vehicles which may wish to adopt that means of locomotion. The promoters of the Bill are comprehensive in their ideas. Their motor road (if any) is to commence at Croydon and terminate at Patcham,

a few miles on the London side of Brighton. They are to raise two millions and a quarter of capital in £10 shares. They are to build a special road 40 miles, 1 furlong and 1 chain (that one chain is good) in length, and they are to take five years building it, and to keep all horse drawn traffic off it when it is built. Well, we have always been against projects of this kind, and our reasons have been the very obvious ones that the moment the principle is admitted by the legislature that motor vehicles should have roads to themselves, tremendous force will be given to the contention of the anti-motorists that they should not be allowed on ordinary roads, or, if allowed at all, only permitted to attain a prohibitively slow snail's pace. It might be very nice to have a road from London to Brighton restricted solely to motor traffic, on which a few speedomaniacs could tear along at sixty miles an hour, though how the company who builds the road will get their money back is quite a different consideration, but we think that enjoyment would be very dearly purchased by any strengthening of the opinion amongst the people in this country generally that motor cars are to be confined to special roads. That this would be the ultimate result we do not for a moment doubt. The Members of the House of Commons, therefore, who have the real interests of the automobile movement at heart, will, we think, be justified, when the measure is introduced, in uttering the simple but sometimes fatal words, "I object."

The Parliamentary Campaign.

THERE is scarcely a more important consideration for all interested in the future prosperity of the movement than the tactics to be employed by automobile associations such as the A.C.G.B.I. and the Motor Union (and by individual automobilists as well) in regard to the approaching General Election, which, it is now pretty certain, we may look forward to at the commencement of the new year. We referred, the week before last, to the very admirable suggestions put forward by Lord Harmsworth as conditions to which candidates for Parliamentary election should be required to subscribe before car owners should agree to placing cars at their disposal for electioneering purposes, and last week we announced with satisfaction that the Motor Union had agreed to adopt the same lines and require candidates to subscribe to practically the same "articles of faith"—and performance, before undertaking to assist them. So far all is well. The principle for which we have always battled, that the support of automobilists was of the highest importance in determining the result of Parliamentary elections, has been recognised, and what is even more important still, it has been recognised by the most representative automobilist bodies in the United Kingdom that the automobilist cause is to have precedence of everything else. At the same time some scheme of organisation is necessary. There may be many objections—some possibly of a legal character—to a body like the Motor Union taking part as such in lending vehicles for Parliamentary candidates. After all, the Union will, in the main, have to rely for support, that is to say, for the vehicles which it can place at the disposal of any candidate, mainly on the local automobilists in the districts in which the election is taking place. This is particularly so in a General Election, as a concentration of forces on particular constituencies will hardly then be possible except in the case of

those elections which, by the idiosyncracies of British law, take place considerably after the others. Of course, where two candidates are both supporters of the automobile movement, and both subscribe to the articles of faith referred to, the Motor Union will naturally refrain from taking up an attitude more in favour of one than the other. In that case, it will no doubt wisely leave the local automobilists to support with their influence and their cars the candidate to whom their political or other sympathies incline them. Much the same will be the case in those unhappy constituencies in which both candidates are equally opposed to the movement, though there, of course, the local automobilists will in most cases be well advised to leave both of them severely alone and let them obtain their help elsewhere. The important cases, and those in which the Motor Union can make its influence, organisation, and the energy of its secretary specially and powerfully felt, will be the cases in which one of the candidates is a supporter of the movement and signs the articles, and the other refuses to do so. There the whole force of the Motor Union will be concentrated on one side. As, however, it will be inadvisable, as pointed out above, for the Motor Union to act directly, it will probably be best for the Union to adopt the plan of putting itself into communication with all local automobilists and inducing them as far as possible to put their cars at the service of the candidate whom we may call the automobile candidate, and in any case refrain from lending them to his rival. The Motor Union is, we understand, taking steps to organise and establish communications with the automobilists of all different constituencies, whether members of the Union or not, with a view to carrying out some such plan of campaign. It is the most effective line to adopt in regard to a General Election. We hope to see it carried out with energy and success, and we trust that it will be efficacious and result in the return of a Legislature in general less prejudiced than the last to the requirements of the greatest industrial movement which the world has seen since the introduction of railways.

♦ ♦ ♦ A Good Omen.

WHAT the result of the election will be is, of course, at present on the knees of the gods, but as an indication that the tendencies of Sir Henry Campbell-Bannerman's Cabinet are likely to be favourable to engineering and industrial progress, we would point out that his speech at the Albert Hall contained one important pronouncement which would appear to be of decidedly happy augury for the event of his party coming into power. We refer to the Prime Minister's pronouncement on the great question of canal improvement which, with a view to the development of the motor boat as a commercial institution in this country, we have always advocated. The Premier definitely announced that the Cabinet had decided to appoint a Royal Commission to enquire into the problem of inland canal communication, which, though we are not yet acquainted with the terms of reference which will be drawn up for the Commission, will doubtless involve the consideration of developing and suiting canals for motor boat and motor barge transport. Of course this is no guarantee that the present Liberal Cabinet, if returned to power after the election, will adopt a liberal and progressive policy towards automobilism, but as straws show the way the wind blows, so a proposal of this kind may be regarded as an indication of the attitude they are likely to take up. It is, at any rate, of sufficiently good

augury to enable us to hope that in the event of the Liberal party being returned to power, the Liberal Government will not be opposed to automobile progress, whatever the general feeling of the House may be.

♦ ♦ ♦ The Conquest of the Air.

FROM information which we furnish this week in our Aeronautical column, practically all doubt as to the substantial correctness of the statements which have appeared in the French papers regarding the success of the Wright brothers in accomplishing extended free flight with a *motor-driven* aeroplane may be regarded as removed. That they have accomplished free flight, returning to the point from which they started, with an apparatus heavier than air, in which no lifting power derived from gases, enclosed in gas vessels or otherwise, is made use of, and that they have maintained themselves for a full half-hour in free flight in the atmosphere is a fact vouched for by a letter from the Wrights recently received by the Aeronautical Society of Great Britain. One could have wished possibly for a more sensational announcement, and demonstration of the facts witnessed by a satisfactory assemblage of experts. But the great things of this world are often done quietly, and if, as we believe, the facts are as we state, one of the greatest, probably the greatest of mechanical triumphs which the world has witnessed is now an accomplished fact. Man, at least two men, have learned to fly by the exercise of mechanical power, and what two have accomplished others will unquestionably learn to do in time. The thought has something of solemnity about it. Everyone with a soul above the most prosaic considerations will feel a glow of reflected triumph that the solution of the problem has come in his day. Sooner or later we knew man would add the air to the other realms he has conquered, though that has hitherto been a dream of the dim and distant future. It is too much to say that he has conquered it now, but it seems certain that two intrepid experimenters have ventured into the new province and have returned unscathed to describe their successful raid. Let us hope the appearance of their detailed description will not be long delayed.

♦ ♦ ♦ A Triumph for the Internal Combustion Engine.

THE subject is one which necessarily fascinates the automobile engineer. Apparently, no doubt, because it is he that is just accomplishing the triumph of mechanical locomotion both on the water and on *terra firma*, and naturally he regards with special sympathy the intrepid attempts to extend locomotion into the other element. It is particularly, however, as designer of the internal combustion engine that these results most appeal to him. Never before in the history of mechanical civilisation has a prime mover been devised capable of developing so high a power for so small a weight as the modern petrol-consuming internal combustion engine. Free flight by motor propulsion or even the existence of an effective navigable balloon like the Lebaudy airship were impossible before the automobile engineer had developed a machine of this extraordinary lightness for its power. If the Wright brothers have been the first whose skill and extraordinary address have enabled them to accomplish a result for which others have striven in vain, it is none the less true that the engineering agency which has perfected the modern internal combustion engine has had its share in their triumph.

PARIS SALON 1905.

(Continued.)

Commercial Vehicles.

PRACTICALLY for the first time, the industrial vehicles in the Serres de la Ville form an important exhibition by themselves, and it is almost surprising what a large

mounted on wood radius beams in much the same way as it is on the Milnes-Daimler vehicles. In some cases, like that of the Bayard, the casing of the transverse shaft is bolted directly to the stationary rear axle, instead of being carried on radius beams, while on the De Dion 'buses spur gearing is adopted in connection with their well-known transverse cardan-shafts, thus enabling the gear-box and differential case to be fixed to the frame. The majority, however, use ordinary side chains, among them being the De Dietrich, Fiat, Aries, Mors, Martini, Herald, Lacoste and Bateman, and Delaugere and Cluyette; but one or two, such as the Turgan, have side chains of the Renold "silent" pattern.

There are also some chassis on which peculiar systems of transmission have been embodied, such as the Kreiger petrol electric 'bus, in which the rear wheels are driven—through spur gearing—by independent electric motors; the petrol engine being only employed to drive the dynamo, which is mounted behind it. Another peculiar machine—which, however, is no novelty—is the "Avant-Train," shown by Messrs. Latil; this is designed for use as a fore-carriage on existing vehicles and is mounted on two wheels—which form the front wheels of the complete vehicle when in place. The wheels are driven through spur gearing by a transverse differential shaft, which is itself driven by spur gearing from the engine. An ordinary change-speed gear-box is mounted alongside the engine, which is placed transversely in the frame. On the Ducommun 'bus chassis—which was on view also at

THE PARIS SALON.—A Krieger Petrol-Electric Omnibus, having 1st and 2nd class compartments. In front is a petrol engine driving a dynamo; the rear wheels are independently driven, through spur gearing, by electric motors.

number of firms exhibit there. For the most part the chassis and cars are for commercial purposes only, although one or two are for military work, and a few are for private buyers, who require moderately heavy vehicles at their country seats. Not the least striking of the exhibits are the examples of London 'buses, but these, unfortunately, were not shown by English firms—in fact, we did not notice any English name in the whole building with the exception of that of Messrs. Thornycroft, who showed some of their famous steam vehicles. Steam vehicles, however, were not particularly well represented, the Purrey, Chaboche, and Zappa and Schars, being about the only other examples.

There is little that is very striking or novel in this commercial section, and, as with the pleasure cars, most well-known makes have already appeared at Olympia. In many cases, the principle adopted by the respective firms when entering on commercial work, has been to retain much the same system as they employed for their pleasure cars but to make every part much stronger—and there is now, we are pleased to say, less obvious omission of the extra material than there used to be. It is true, however, that some other firms have followed the Milnes-Daimler system of driving the rear road-wheels by means of internal toothed gearing—a system seldom seen on pleasure cars.

Among such vehicles is the new Panhard 'bus chassis, which also has the transverse countershaft

THE PARIS SALON.—The Sizaire-Naudin Voiturette. View showing the transverse spring in front. The axle is solid with the frame, and the steering heads are free to slide vertically through their sockets at each end. A somewhat similar arrangement was introduced on a Daimler voiturette which we illustrated in June, 1899.

Olympia—a live rear-axle is employed, but the method of driving it is peculiar. The bevel gears are duplicated, and the short shafts carrying the two bevel pinions are simultaneously driven by the spur-pinion mounted on

of this make are, as is well known, already running on the London streets. In general, however, the engines of other makes are vertical, and not in any way peculiar, although the Saurer has the ingenious system of using the engine as a brake, which we described in our last issue. The "341" type 'bus of the Saurer is the only one by which the Saurer

THE PARIS SALON.—View of the Six-wheeled Janvier Lurry. The four front wheels support a kind of bogie carriage, which is attached by inverted elliptic springs to the main-frame. All four wheels are coupled to the steering mechanism, but the bogie carriage itself always remains parallel to the frame. In the illustration one of the front wheels is resting on a large stone in order to demonstrate that it can assume that position without twisting the main frame.

the end of the propeller-shaft. In this way side thrusts are balanced, and the manufacturers also consider the design more suited to heavy work on the question of strength. Another interesting point on this chassis is the division of the propeller-shaft into two portions which are coupled together by an intermediate universal joint. This has been found necessary because the gear-box is placed close up to the engine, and the shaft would otherwise be of extreme length. A bracket attached to the frame supports the shaft close up to the universal joint.

Among curiosities, our readers will remember that the Hagen lurry has always deserved a place, and it comes as a surprise, therefore, to find that the ratchet-driven live axle has now been abandoned. Some form of gradually variable gear, however, is, apparently, still considered essential, so the manufacturers have adopted the well-known friction-disc principle, of which the Frick is an example to be seen in this country. On the Dufour chassis the two-cylinder horizontal engine drives the gear-shaft through a flat belt, and a fast-and-loose pulley arrangement does duty for a clutch. Side chains of the Renold type are used for the final transmission to the road wheels. Another chassis fitted with a horizontal engine is the Orion, in which the two cylinders are opposed and lie transversely in the frame, side chains being used to drive the rear wheels. Some 'buses

and they also afford a sharper steering lock. Of these points, the former are matters on which practical experience alone can prove their real relative values, but the advantage in the matter of steering is merely

vehicles.

ture of this year's Salon, is concerned, is the It is a point on which no little discussion is likely to take place in the near future, for some engineers are already investigating the practical advantages of the principle. At present it is in connection with 'buses and vehicles of very long wheel-base that the question is most discussed, for its more important claims—apart from the advantage of the additional support on such long frames—are that six-wheels give greater stability against overturning and skidding, and they also afford a sharper steering lock. Of these points, the former are matters on which practical experience alone can prove their real relative values, but the advantage in the matter of steering is merely

THE PARIS SALON.—View of the Lemoine brakes on the Janvier Lurry. The shoe-brakes, C, hang from the pivots, C², and are tied together by the bar, C¹. When applied, by the rods, A, which force backwards the fulcrums, A¹, the whole bracket carrying the shoe-brakes swings bodily towards the wheel, and at the same time the bands, B, tighten about the hubs. This latter action has the effect of tilting each of the short beams, B¹, which is pivoted about A¹, until its end comes against the back of the shoe-brake. In this way practically all the tensile and crushing strains are self-contained in the wheel itself, and the torsion, tending to carry away the whole mechanism, is resisted by the bolt, C².

THE PARIS SALON.—View of the six-wheeled Borderel vehicle, which has the centre wheels chain-driven and the fore and aft wheels coupled to the steering gear. The company are not pushing this principle so much for commercial work as from the standpoint that the compensated springs allow solid tyres to be used on touring cars.

dependent on the design. At present most examples in use have the centre pair of wheels constructed as driving wheels, and all the other four as steering wheels. It is obvious, therefore, that the effective wheel-base is halved. On Messrs. De Dietrich's stall is a model of a six-wheeled vehicle which, up to the time of writing, had not itself actually put in an appearance. A complete vehicle, however, is shown by Borderel and Co. in the Grand Nef, but this is not of the "heavy" type, neither is it an example to which the six-wheeled principle is particularly applicable. In the Serres de la Ville the most important example is that of the famous Renard train, which has six wheels on each of the coaches. Another vehicle shown by Janvier and Co. also has six wheels, but in this the extra pair are merely used to form a kind of bogie-carriage in front, and it does not, therefore, come within the scope of six-wheeled vehicles proper. The prototype of this latter vehicle was first exhibited in 1903, and by the same firm, it may be mentioned.

In connection with the real six-wheeled vehicles a system of compensated springs is adopted in order to equalise the load on the wheels. This is done, in spite of the fact that only one pair are driving wheels, because the unevenness of roads is assumed to be so great that there might otherwise be occasions on which the centre pair of wheels would lose their grip when passing over a hollow. Neither are the systems of compensation all similar, for elaborations have been introduced in the Renard system which are not to be found in the others. In each case, however, the method of driving the centre pair of wheels is by side chains.

Boats.

Although the boat section, in the Serres de la Ville, is very repre-

sentative, it does not call for special comment. Most of the boats are similar to those shown at Olympia, and there is little either in the design or construction which is particularly remarkable. Perhaps the largest motor boat of all is "Dietrich Cachat," a fine cruising launch fitted with roomy cabin accommodation, and in every way designed for comfortable cruising. In antithesis is "Avant Garde," a thin torpedo-shaped craft in steel, which is, of course, only suitable for racing purposes. "Antoinette" is also exhibited, and provides an excellent opportunity of inspecting the 16-cylinder 180-h.p. engine with which she is fitted, and of which we give a photograph elsewhere.

While there is no striking difference in general design between French and English-built motor-boats, it is noticeable that many of those at the Salon are fitted with a belt reversing gear, which is a form practically unused in this country. In this gear a large pulley wheel is fixed to the driving and driven shaft, and an endless belt passes under each and over a jockey-pulley placed on each side, in such a way that the motion of one pulley relatively to the other is reversed. Normally the belt hangs loose, and the engine transmits directly through the clutch. The clutch-lever is interconnected with the pivoted bracket carrying the jockey-pulleys, however, and when pulled backwards it automatically tightens the belt after disengaging the clutch.

Novelties.

At any show it is the novelties which are apt to most attract the casual visitor, and it must be admitted that there is a fascination about suddenly discovering little examples of inventive genius—too often also remarkable as instances of misplaced talent—such as it is generally possible to do in even a preliminary walk round the galleries at the Salon. This year there are among other things a pair of motor skates, a motor driven life-belt for those who cannot swim, and a turbine, of a type and principle which should have a strong—and undisputed—claim to originality. In addition, there are two other rotary engines in which the cylinders revolve, while another peculiar engine—

THE PARIS SALON.—Avant-Garde, a racing motor boat exhibited by A. Clement. The hull is made of steel and is very narrow in the beam, while the bows taper gradually to a fine knife edge. The four-cylinder engine is placed just under the raised portion of the deck.

to attend to after the flexible tube is attached, and this could be facilitated by providing a permanent fitting at the side of the frame.

Automatic Starting Devices.

Several firms are—as the result of M. Deutsch de la Meurthe's prize—now interesting themselves in the construction of devices by means of which the engine can be automatically started from the driver's seat. Of these the Mors, Renault, and Saurer are the most interesting of those actually exhibited at the Salon, although they are not the only examples there. The Mors device—illustrated last week—consists of an air-pump, attached to the frame near the driver's seat, and a small brass tank, for retaining petrol, which is fitted to the dash. Pump and tank are coupled together by a pipe, and are connected to the cylinders, so that a few strokes of the pump charges all the cylinders with "mixture." For some reason unknown, the manufacturers are apparently desirous of giving the little petrol tank an air of secrecy, for they

decline to say whether it is anything but an empty box forming a surface carburettor, and they have further taken the trouble to seal it. In order to check inquisitiveness, the catalogue states that any tank unsealed will be neither replaced nor repaired. In action, at any rate, its effect is that of a carburettor, and the initial explosion of the uncompressed gas in the "firing" cylinder is relied upon to turn the crank-shaft sufficiently to compress the next charge.

The Renault device is more complicated but less secret. Near the fly-wheel is a small 3-cylinder air-engine driving a spur-pinion which engages with a spur-wheel on the periphery of the fly-wheel. An eccentric motion is provided to engage the two wheels, but they automatically disengage directly the engine starts. Compressed air is carried in a cylindrical tank attached to the frame, and this is recharged as required by admitting exhaust gases from the petrol engine. In the Saurer self-starter

THE PARIS SALON.—View of the 180-h.p. engine in "Antoinette." There are 16 cylinders arranged diagonally, they have automatic inlet-valves and brass water-jackets. For the purposes of reversing, the exhaust-valve cam-shaft can be shifted and the engine started in the opposite direction.

which would be more interesting if it were finished—is designed to operate on the compound principle. The skates are mounted on four moderately large wheels, the back pairs being driven direct by the axle which forms the crank-shaft of the little horizontal engine. Petrol and batteries are attached to a belt which is worn by the skater. As a diversion it should have unbounded possibilities. Less interesting, although possibly even more dangerous, is the motor life belt arrangement, consisting of a box containing a small motor and its accessories, which is strapped to the user—the whole being supported by a pneumatic float. Projecting from the box is a small three-bladed screw, which is driven by the engine. Further details concerning its action are not yet available, but we imagine that a fair competency in the art of swimming would be useful, perhaps even essential, at times.

In the Retz turbine, previously mentioned, there is a vertical shaft, which is driven hydraulically by jets of water impinging on vanes. Arranged symmetrically round the central spindle are nine cylinders, also placed vertically, from which the water is discharged under pressure derived from exploding "mixture," as in a petrol engine. Each cylinder operates separately, so that the shaft obtains nine impulses per revolution. "Suction" is obtained by the effect of the water entering the cylinders and cooling the residual gases. A certain amount of compression is also obtained automatically, the various phases of the cycle being controlled by a rotary valve operated by the main shaft. It will be understood, however, that the main shaft must always be vertical.

A useful device in the shape of a mechanical tyre-pump is fitted to a Bollée chassis. It is mounted just in front of the gear-box, and is driven through spur gearing from the main shaft. In this position it is not, perhaps, extremely accessible, but there should be nothing

THE PARIS SALON.—Dietrich Cachat, one of the largest and best appointed cruising launches in the Exhibition. Alongside the boat is a large 8-cylinder marine engine, but that fitted in the boat is one exactly half this size, having four cylinders.

THE PARIS SALON.—The De Dion Bouton Company's artistic stand which, although simple, is extremely attractive, being decorated with festoons of artificial flowers.

compressed air is used direct in the cylinders of the engine, a small gear-driven reciprocating pump being used to recharge a cylindrical tank up to a pressure of about 18 atmospheres. When required to start the engine the air is controlled by a rotary valve which admits it in turn to each cylinder.

Accessories.

If only they were more compactly arranged, and less interspersed with exhibits entirely unconnected with motoring, the accessories in the Gallery would be vastly more attractive.

As things are at present, however, it is very difficult to find any particular stall, and practically impossible to make sure that everything there is to see, has been seen.

Magnetos, both of the high and low tension types, are very much in evidence, for practically all the well-known firms—among them being Simms-Bosch, Eismann, Lacoste, and Gianoli—have excellent exhibits. Lacoste and Company's stall is one of the best arranged in the gallery, and we notice that they have wisely adopted the plan of showing the elementary parts out of which their magnetos are constructed, for anything which tends to familiarise the public with details must eventually be mutually beneficial. There are also several speed indicators, shown by various firms, among which we were pleased to see

S. Smith and Sons, who, with their characteristic enterprise, have taken over a large stock of specially calibrated indicators for the French market. For finish and workmanship these English-made instruments are not surpassed by any of foreign manufacture exhibited at the Salon.

Motor clothing is always a section to which a large amount of space is devoted in the galleries, and this year is no exception. Styles, however, are somewhat different in France, and seldom, it may be said, reflect that proverbial good taste for which the Parisienne is famous. Many of the garments and hats were hideous, and quite a number of those designed for men were ridiculous. One of the most amusing exhibits we have seen anywhere is that of a firm called "Le Sport," who have installed a miniature Madame Tussaud's, in which several wax figures are grouped in unconvincing attitudes about a motor car. The variety of garments, all of which are presum-

ably appropriate to the occasion, is amazing. As an additional attraction, a long-haired fur coat, with which one of the lay figures is adorned, is offered as a consolation prize in conjunction with the official lottery.

This type of coat seems to be very popular in Paris just now, but possibly this may be explained by their price—one such being offered for sale in the Grand Boulevard at the very moderate figure of thirty-nine francs.

THE PARIS SALON.—One of the new motor omnibuses leaving the Place de la Bourse for the Grand Palais. This service was inaugurated simultaneously with the opening of the Show, and those few vehicles which are in use are only on trial. Being still a novelty to the Parisian the 'buses attracted much popular attention and are always eagerly filled.



The Qualities of Cast Iron.—Grey cast iron is so important a material in the manufacture of engine cylinders, and it varies so enormously in quality, that special interest attaches to the articles which appeared some little time ago in *Stahl und Eisen*, by Dr. H. Nathusius, on microscopic sections of this material. The researches have been mainly directed to establishing the magnetic qualities, that is to say, the suitability of certain

kinds of cast iron for dynamo construction. The extent, however, to which the material varies in homogeneity, particularly in the equable distribution of the graphite, which is so important a constituent of grey iron, according to its composition (percentage of silicon), is so striking, that the series of papers and discussion on them, published in our German contemporary, cannot fail to be of considerable interest to automobile constructors generally.

HIGH-TENSION MAGNETO IGNITION.—PART XXI.

THE LACOSTE SYSTEM—(concluded).

The Electrical Connections.

INTERNALLY the electrical connections are in no way peculiar, as the diagram of connections, Fig. 9, very

“earthing” that coil, as is generally the case in self-contained machines of this type. It is a small matter and not of any moment electrically, but it is important for the practical user, because he has to remember that it is necessary for the switch to be “on” in this case before

FIG. 9.—The Lacoste High-Tension Magneto. Diagram of internal electrical connections, showing how the windings on the Armature are connected to their respective circuits.

clearly shows when compared with others which have preceded it. Externally, however, there is one small point which it is important to notice, and that is the position of the switch. Contrary to usual practice, a switch is employed in the Lacoste system to connect the armature primary coil to its contact-breaker and not for

the magneto can be brought into use, whereas in other cases the switch is actually turned “off.” At no time does the switch on the Lacoste system make any con-

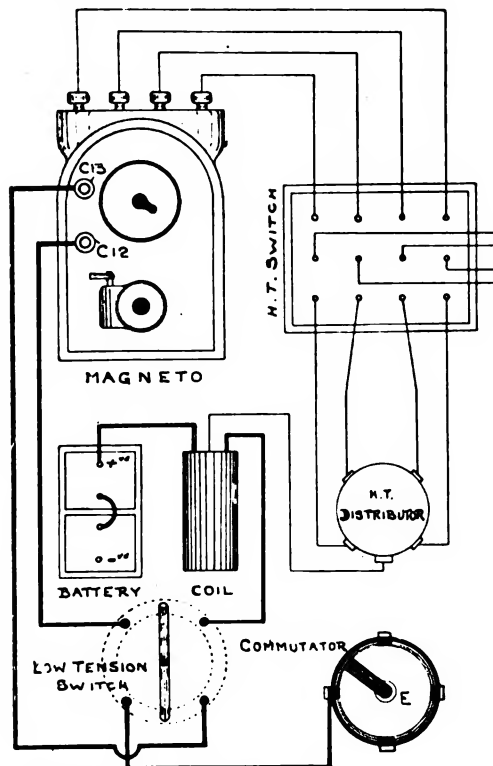


FIG. 10.—The Lacoste High-Tension Magneto. Diagram of wiring for the Lacoste Magneto when used in conjunction with ordinary battery ignition. High-tension distribution from a single trembler coil is assumed for the battery circuit, but the modifications necessary for a multiple coil system are obvious. It must be understood that, in the above diagram, the four contacts of the commutator are connected together.

FIG. 11.—The Lacoste High-Tension Magneto. View of the special High-Tension Switch, which is designed to enable this Magneto to be used in conjunction with ordinary battery ignition.

FIG. 12.—The Lacoste High-Tension Magneto. Sectional drawing of the High-Tension Switch, showing the Ball Contacts and the Switch Bar, Y², which is embedded in ebonite.

nection to earth, consequently when the magneto is out of action the armature primary coil forms an open instead of a closed circuit.



FIG. 13.—The Lacoste High-Tension Magneto. Views of the component parts of the High-Tension Switch. That shown is for a four-cylinder engine, each element is separate and can be separately operated in order to test the Ignition.

The Battery Circuit.

Although the model we have described is not specially designed for use with an alternative system of battery ignition, it can be used in this way if desired, either on a set of separate ignition-plugs or in conjunction with those employed for the battery. Of the two, the former is perhaps the simpler system, but it is not generally considered to be entirely satisfactory on account of the behaviour of the battery-circuit ignition-plugs after they have remained idle while the engine has been running on the magneto. In order to use the same plugs for both systems of ignition, however, a high-tension switch is necessary, and as it is impossible on this particular model to introduce a simple switch between the armature secondary winding and the distributor, it is necessary that a multiple switch be provided for the purpose of breaking the connection between each high-tension wire and its respective plug. For this purpose the Lacoste Company have constructed a special multiple switch which we illustrate in Figs. 11, 12, and 13. It is an ingenious device and very well made, as indeed it need be for such a purpose; the base is cut out of a solid block of ebonite, and all the terminals are attached to this portion. Neat ebonite quadrants form the moving parts, and these are mounted on a stationary spindle which is fixed to the base. They carry small spring contacts formed by steel balls in short brass tubes, and the brass rods connecting these tubes

are embedded in the ebonite. This construction is clearly indicated by the sectional drawing in Fig. 12, which also makes clear the operation of the switch. Connected to the centre terminals are the ignition-plug wires, while the two outside rows of terminals are connected respectively to the magneto and battery distributors. Each quadrant in the multiple switch can be independently operated, and any of the cylinders can therefore be immediately isolated for testing purposes.

In addition to this high-tension switch a two-way low-tension switch is necessary for dealing with the primary circuits. When changing over from one system to another it would be easier to throw over two of the four quadrants of the high-tension switch before moving the low-tension switch; after which the other two

quadrants could then be moved across. In this way the engine would be running for an instant or so on only two cylinders; but in order to avoid this it would be necessary to work both switches simultaneously—which would not be easy when they are constructed separately, and are of different patterns.

Diagrammatic connections for the duplicate systems are shown in Fig. 10, and although it has been assumed that the battery circuit is worked with a single coil, the diagram can obviously be easily applied to suit the case of a multiple coil.

Table of Reference Letters for the Lacoste High-Tension Magneto.

A	Armature core.	D ³	Spur-wheel on B.
A ²	Side-plates for A.	D ¹⁰	Cover over distributor.
A ³	Armature spindle (driven end).	D ¹¹	Plug-board on D ¹⁰ .
A ⁴	Armature spindle (free end).	D ¹²	Terminals to plugs.
B	Sleeve coupling on B.	D ¹⁶	Idle pinion between D ⁷ and D ⁸ .
B ²	Cam.	E	Earth.
B ³	Armature end plates.	F	Condenser.
B ⁴	Engine-driven spindle.	F ¹	Live end of F.
B ⁵	Armature coil primary.	G	Magnets.
C	Slip ring (live).	G ¹	Base-plate.
C ¹	Contact breaker.	G ²	Pole-pieces.
C ²	Collector brushes (live).	G ³	Cover.
C ³	Brush holder.	K	Timing-lever.
C ⁴	Adjustment screw.	K ¹	Spiral slots in B.
C ¹² , C ¹³	Magneto switch terminals.	K ²	Toothed quadrant on K.
D	Secondary armature winding.	L	Lubricator.
D ¹	Live end of D.	M	Bearing plate (driving end).
D ²	Collector brush.	M ¹	Bearing plate (driven end).
D ³	Feeder brush.	M ²	Armature bearings.
D ⁴	Distributor arm.	R	Ignition plugs.
D ⁵	Distributor brushes.	Y	Low-tension switch-bar.
D ⁶	Distributor spindle.	Y ²	High-tension switch-bar.
D ⁷	Spur-wheel on D ⁶ .		

Object Lessons of the Immobile Tram.—A charming spectacle of the immobility of the tramcar, resulting from the rigid manner in which the trams are restricted to their rails, was afforded not long ago at Gunnersbury, when, owing to the breakdown of a pantechicon van outside the station, some fifty electric tramcars were held up for upwards of an hour. Needless to say, with a similar service of motor 'buses there would have been no such dislocation of traffic, as the 'buses would have been able to run round the end of the damaged pantechicon without seriously congesting the traffic behind them.

APROPOS of this occurrence, a fifty minutes' block

took place recently at Walthamstow owing to the tram service. Subsequently, proceedings were taken before the magistrates against the owners of the pantechicon, which, by the way, in this case, was not broken down, but was merely unloading furniture. The magistrates maintained that the driver of the pantechicon was well within his rights, and that fifty minutes was not an unreasonable time to take for unloading such a vehicle. But think of it, but for the trams there would have been no block. As it was, not only was the tramway system paralysed, but the whole of the other ordinary traffic had to be diverted by side roads round the immovable trams.

A WOLSELEY FIRE-HOSE CAR FOR GLASGOW.

The Wolseley Fire-Hose Car, built for the Glasgow Corporation Fire Brigade, being tested by the Birmingham Brigade.

SOME interesting tests were recently made at the headquarters of the Birmingham Fire Brigade with a new Hose Car built by the Wolseley Motor Car Company for the Glasgow Corporation Fire Brigade. Throughout the tests the car carried its full complement of ten men in addition to the driver—as seen in the accompanying illustration—these men being members of the Birmingham Brigade. As a result of the experiments then conducted, it was found to take only 5 secs. for the car to reach the street, although standing in its usual position in the engine room with the motor at rest and the entrance doors closed when the alarm was given. In the traffic, its capabilities were admirably demonstrated,

and—when the road was sufficiently free of traffic—a speed of over 30 miles an hour was easily attained. Incidentally, this second test proved the effectiveness of the large double-beat fire gong, that is fixed in front, in clearing the streets for the car to pass. Finally the hill-climbing powers were fully demonstrated, for the car took the full equipment up a grade of 1 in 8 at a speed of 10 miles an hour. We learn that all the officials present were extremely satisfied with the behaviour of this useful vehicle, and it was evident to all that Glasgow is about to add a unit of very great value to the already large fire equipment possessed by that go-ahead city.



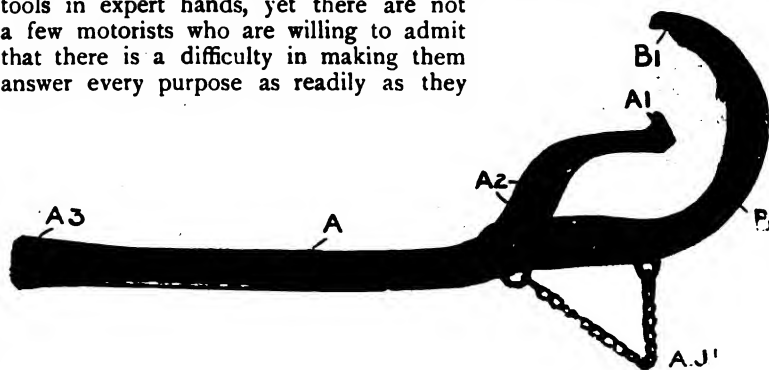
The Commercial Automobile for Australia.—Australia, particularly many of the mining districts of the great island continent, is lamentably deficient in water supply, and regular droughts frequently prevail; in fact, it appears that there is one most promising gold district in North Australia which has hitherto remained practically undeveloped owing to the difficulty of transport due to the above causes. The railways have not got as far, and horse teams have either to load themselves up with so much fodder and water for the support of the animals that they can carry little else, or be attended by another horse-drawn equipage filled up with provender and water for the first. The traction engine, too, is at a discount, owing to the scarcity of water. Recourse has been had to the camel, who drinks as little water as a “potheen” reared Irishman of Connaught, and though he has even been trained in Australia to draw carts (which he does not like), the utmost he can effect is trifling from an industrial point of view. There are

other districts in Australia, notably the districts served by the tracks which branch from the South Australian central line of railway, which are very rich in minerals, and in which the same condition of affairs prevails. Here is obviously a splendid field for the commercial light petrol lorry, which is practically independent of water, and can be designed to travel over very rough country indeed. Its presence in adequate numbers would mean the satisfactory commercial development of many parts of Australia, where progress is at present to a large extent at a standstill for the want of adequate means of transport. Let us hope that this important field of usefulness may soon be exploited by the automobile.

THE Automobile Club of Italy, which has its headquarters at Turin, has, at the Conference of Clubs held in Paris last week, been admitted into the circle of recognised Automobile Clubs.

THE PULLMAN TYRE LEVER.

ALTHOUGH the ordinary small tyre levers, which are included in the orthodox repair outfit, are admirable tools in expert hands, yet there are not a few motorists who are willing to admit that there is a difficulty in making them answer every purpose as readily as they



The Pullman Tyre Lever, which has been designed to facilitate the removal and replacement of outer covers.

could wish. To such, at any rate, the new lever introduced by Messrs. Pullman—the well-known manufac-

turers of the Pullman non-skid bands—should offer many attractions, for it is a substantial and well-made article, and it has been designed for the purpose of especially facilitating the more difficult and tedious operations connected with tyre attachment and removal. The lever is formed in two pieces, A and B. At the end of the hinged part, B, is a small hook, B¹, which engages with the far side of the wheel-rim. When thus in position, the handle, A, is used to force the heel, A¹, against the wall of the tyre, thus withdrawing the beading and facilitating the insertion of an ordinary tyre lever. When replacing a cover, the heel is used to lift the beading over the rim, in which operation it should be particularly useful with a stiff tyre on account of the long leverage obtained. It will be noticed that the hinged member is adjustable in the holes, A², and that the handle, A, has a flattened end, A³, which may be used as an ordinary lever when required.



STARTING DEVICE COMPETITION.

ON Tuesday, the 19th of December, at the Paris Automobile Salon, a jury on behalf of the Académie des Sports selected the winners of the Deutsch Prize (particulars of which have already appeared in our columns) in an open competition of devices designed to enable petrol engines to be started from the driver's seat. Of the seventeen entries only eleven actually competed, but there would have been one other—the Renault, which we illustrated last week—had that competitor not arrived just too late.

As the result of the trial, the jury have awarded equal prizes of 1,500 francs to the constructors of the Mors and Isnard devices, a prize of 1,000 francs to the Lemale, and consolation prizes of 400 francs and 200 francs to the Saurer and Pellorce respectively. There remains a sum of 500 francs which the jury have decided to use in purchasing medals, and they will award one in silver gilt to M. Deutsch, and others in bronze to each of the competitors.

Brief descriptions of some of the competing devices are given herewith, and an illustration of the Mors self-starter—which gained a first prize—appeared in our issue of December 16th.

Mors.—This is an apparatus for filling all the cylinders with uncompressed "mixture," and the firing of one charge is relied upon to be sufficient to enable the engine to compress the next; after which, of course, the engine runs normally. An air pump and a surface carburettor form the essential parts of the device, the former being adjacent to the driver's seat, the latter on the dash. It is applicable to any multi-cylinder engine, fitted with battery ignition. Weight, 10 kilograms.

"Cinogene" (M. Isnard).—With this apparatus the engine is started mechanically by the action of rack and pinion, the rack being operated by a piston which derives its power from the expansion of carbonic acid gas behind it. A supply of liquid carbonic acid is

stored in another vessel, and the gas is admitted to the starting cylinder as required; in the vessel the gas is liberated at a high pressure to replace that drawn off. Being purely mechanical and capable of imparting a high piston velocity to the engine, the apparatus is equally applicable to all engines whether single or multi-cylinder.

Battault.—In this apparatus cartridges are exploded in such a manner that they cause a wheel to revolve, the wheel being clutched on to the crank-shaft in order to start the engine. Weight 14 kilograms.

Sjelsky.—In this a hand-operated gear, acting directly on the crank-shaft, is used. Weight 5 kilograms.

Pellorce.—A series-wound electric motor and a battery of accumulators are employed to start the engine in this case. When not in use for this purpose, however, the motor forms a shunt-wound dynamo for charging the accumulators. Weight, 60 kilograms.

Buisson and Renardy.—This is a simple free-wheel ratchet device on the crank-shaft. It is operated by a foot-pedal. Weight, 8 kilograms.

Lemale.—An ordinary spiral spring is all this device consists of. It is wound up by the engine each time after it has been used.

Genevriez.—A mechanical device acting directly on the crank-shaft and operated by a hand-lever near the driver's seat.

Phillipe.—A small turbine—which is said to work equally well with compressed air, carbonic acid gas, or a head of water—is in this apparatus used to start the petrol engine.

Saurel.—Compressed air is here used in the engine direct. Its successful action depends, of course, on the pistons never remaining at rest on their dead centres. A small air pump is coupled up to the engine for the purpose of recharging the reservoir. Weight, 6 kilograms.

AERONAUTICS.

More Wright Rumours.

THERE seems little reason to entertain any longer a sceptical attitude regarding the alleged exploits of the Wright Brothers with motor-driven aeroplanes, of which we gave the particulars, as contained in a letter to Captain Ferber, in our number of December 9th. We take this view in consequence of the Aeronautical Society of Great Britain having received a letter written and signed by Mr. Wilbur Wright, stating that he and his brother had accomplished lengthy flights with a motor driven machine, and had succeeded in maintaining themselves for a full half hour in the air, executing extended flight and returning to the starting point. Taking the probabilities as regards speed attained into account, this agrees fairly well with the pronouncements in the letter published by Captain Ferber of the distances accomplished as varying from 30 to nearly 40 kiloms. The Wright Brothers have never been accused of drawing the long bow in their statements. This, however, is not the only confirmation that exists. Captain Ferber, who has all along been in direct communication with the Wright Brothers and Mr. Chanute, also received from Mr. Chanute a letter, which he published in his paper on aeronautics in the *Revue d'Artillerie*, in which Mr. Chanute personally informs Captain Ferber that he had been a witness of some of the Wrights' experiments, and on one occasion, not by any means the most recent, saw them execute a free flight of about two miles, returning to the starting-point, accomplishing this remarkable flight in a period of about five minutes. Mr. Chanute is probably the highest living authority on aeronautics, and a writer whose *bona fides* and veracity have never for a moment been impugned. The Wright Brothers are his pupils, and he would probably be the first to be invited to witness a successful flight. His testimony, therefore, is of the highest value.

There are two features of the situation which have excited scepticism. One of these is the careful avoidance of publicity cultivated by the Wright Brothers, the other is the proposal made in their letter to Captain Ferber, of placing their invention and their own knowledge and capabilities at the service of the French Government for a consideration of "un million." As regards the first of these points, the Wright Brothers, as we always have observed, have been very reticent, and it is quite possible that considerations in regard to patents may prevent them from publishing all the details of their apparatus and exploits, until such applications as they may intend to make in various countries are secured. At any rate, we know their belief to be that the majority of inventors and pioneers have "given themselves away" and interfered with their prospects by being "too previous" in publication. We have no doubt that as in the case of their record glides, they will ultimately describe their experiments in some engineering publication.

The second point, their proposal to deal with the French Government, involves less agreeable considerations. We learn from a private source that the Wright Brothers in the first instance approached the United States Government with a practically similar proposition, proposing, that is, to put what they had discovered or invented, and their unique experience and skill in aerial flight, at the disposal of the Government of the United States for a consideration of \$200,000 and that the United

States Government refused to consider the proposal on the ground that there was nothing patentable in the machine, and that as soon as the Wrights divulged its construction and management, they would be able to obtain all the necessary data free gratis and for nothing. At present, this statement cannot be accorded anything more than the consideration due to a mere rumour. We hope for the credit of mankind—and Governments—that it is untrue. The incredible meanness of it would be so unspeakable. If the rumours we hear are, as there is every ground to believe, true, here are two inventors and experimenters who have solved the problem of the ages. We may safely say, in spite of all legends about previous successful attempts of the kind, that the Wrights are the first men who have ever really flown. Quite apart from any consideration of patent rights, a solution of the problem of flight should confer a lustre upon the inhabitants of America which the Government of the States ought to be only too anxious to appropriate to some extent by making the inventors a grant, if only on the old Roman principle "for having deserved well of the Republic." For, after all, in comparison with this colossal achievement, many other human exploits sink into comparative insignificance. It was only after the refusal of their own Government, and owing to their constant communication with Captain Ferber, that the Wrights desired to approach the Government of France, not altogether, perhaps, incorrectly estimating the view that Frenchmen were likely to take, that it would be an honour to their country to have become the patrons of the first men who had solved the problem of flight, even if the successful experimenters did not happen to be Frenchmen. We believe the negotiations are still in progress, and we trust they will be successful. For experimenters in a department involving so much expenditure, the Wrights must be regarded as far from well-to-do. Any grants of this kind they might obtain—and their demands, it must be admitted, are moderate—would be to recoup them for past expenditure, and to assist them in further research. Surely their services are worth acquiring by any Government!

We trust the Government of the United States has not made a final refusal. If it has, it will probably find that it has come to a very short-sighted decision. The position is a dilemma. The secrets of success are either due to special construction of the apparatus, some subtle proportionment of surface to length or other general arrangement of parts, in which case they are patentable, or the success is due to skill in the manipulation of an apparatus which presents no novel features of a patentable kind. Even if the second assumption of the dilemma is the true one, the Wrights may still have something to dispose of. It is quite conceivable that they may be able to teach others how to use their apparatus, even though, as we have already pointed out, this kind of skill in the animal world has been only communicable by heredity and not by instruction. In Mr. Wells' delightful romance, "When the Sleeper Wakes," it will be remembered that the possessors of the secrets involved in the successful manipulation of the "aeropiles" formed a closed corporation which jealously guarded what it knew. If the art of manipulating the Wright machine can only be learned slowly, and they have spent a long period upon it, it does not follow that their assistance would not be of the greatest value in teaching others. Flight on

the Wright's principle, therefore, either involves a patentable machine, in which case we may be sure that it has been patented, or it can be taught (perhaps both statements are true to a certain extent). Surely to secure them with their experience as teachers, would be worth the while of any military or civilised power in the world.

REFERRING to the experiments of Messrs. Frost and Hutchison on wing flight, of which we gave an illustrated résumé on May 27th, Mr. Henry Sutton writes from Melbourne to draw our attention to the fact that he communicated to the Aeronautical Society in 1878 a paper on "Wing Flight," including most of the results which the Cambridge experimenters have attained. He had an apparatus driven by clockwork, not unlike the arrangement of the electric motor with goose's wings which Messrs. Frost and Hutchison employed, and it gave very similar results. Mr. Sutton's theory of the actual bird flight differs somewhat from Mr. Hutchison's, as he denies the valvular effect of the up-and-down movement. He maintains that the upward stroke has an effect in producing forward motion. The prospects of flapping-wing-flight are at the present moment, needless to say, far behind those which have been attained with aeroplanes, though of course the form of apparatus which will ultimately triumph cannot even as yet be guessed at. In any case, it is of historical interest to find that an experimenter like Mr. Sutton, who has since done much in other directions—his heavy oil carburettor and car, for instance, were described by us some time ago—was making substantial contributions to aeronautical problems as early as in 1878.

CAPTAIN BALDWIN, the designer of air-ships of the navigable balloon type in the United States, has brought out a further development of his well-known "Arrow," which was the only machine of its kind to give at all a satisfactory account of itself at the more or less abortive competition at the St. Louis World's Fair. The new Baldwin airship is on the same lines as its predecessors, but the gas-vessel is somewhat stumpier than in the previous cases, though its capacity has been increased to 16,000 cubic feet of hydrogen gas. It is constructed of Japanese silk, oiled inside and out, and covered by a square meshed net of 72 cotton seine twine. The hull of the present airship has also been shortened in length from 100 feet to 50 feet, while still remaining of the general Santos Dumont type excepting that the propeller is in front and an enlarged flag-shaped rudder behind. Instead, however, of the members of the

keel being of steel tubing as formerly, they are constructed of Oregon spruce, which is said to be wonderfully tough and well suited for the purpose. The skeleton of the rudder is also made of the same material. It is in the $7\frac{1}{2}$ -h.p. motor, however, that the chief improvements have been introduced, the present machine consisting of two air-cooled finned cylinders inclined to one another at an angle of 45 degrees—the whole in this respect resembling a bicycle motor. Additional exhaust ports are provided, to assist in releasing the burnt gases, and the intake valves are mechanically actuated. A built-up flywheel is employed, and the gasoline tank has a capacity of two gallons. Captain Baldwin has been stating the conclusions at which he arrives at some length. Amongst these are that when an airship of the type he employs exceeds a very moderate speed, it becomes unmanageable. He also proposes the use of inclined aeroplanes for guiding it, in addition to the ordinary rudder. These observations read somewhat amusingly in light of the records of the Lebaudy airship, with which speeds of 25 miles an hour and upwards have been attained without any unmanageability, though this possibly may be due to the fact that the Lebaudy airship has for the last two years employed aeroplanes for steering and maintaining stability.

SOME experiments, not without interest, to the solution of the aeroplane problem, are reported from the United States. An elaborate machine, which might perhaps be described as a combination of the Wright and Langley types of apparatus, was towed by a tug on the Hudson River against the wind, when it ultimately rose to some 500 ft. in the air, carrying Mr. C. K. Hamilton, a professional aeronaut, who succeeded in manipulating it like a great kite tolerably satisfactorily. The machine appears to have given proof of greater stability than is usually possessed by an ordinary kite, though ultimately when the pull upon its rope was diminished it made a dive into the water, the aeronaut being rescued by a boat. He is very sanguine as to the capabilities of the machine, and believes it will be possible to manipulate it if supplied with motor equipment and propellers. Aeronauts almost invariably are exceedingly sanguine. The machine consists of two aeroplanes, one behind the other and braced together, each of these structures consisting of an upper and lower flat plane, with inclined planes joining the ends of the upper plane with the centre of the lower plane, vertical steering rudders projecting from the upper plane. The construction is said to give great rigidity, and the inclined planes are said to increase the lateral stability.

MOTOR CYCLING.

Auto-Cycle Club.—Tickets are now ready for the Auto-Cycle Club's annual dinner, to be held at the Criterion Restaurant, Piccadilly Circus, on January 17th, price 7s. 6d. each. Amongst the visitors who have already intimated their intention of being present are Sir W. Martin Conway and Earl Russell.

The first quarterly trial will start from the Chequer's Hotel, Uxbridge, over the following route:—Uxbridge, High Wycombe, Dashwood Hill, Wheatley, Bletchington, Banbury (lunch), returning *via* Bicester, Aylesbury, Berkhamstead, Chesham, Amersham, Beaconsfield, Uxbridge. This route was used in the Passenger Motor Cycle Trials last October. The event is open to all classes of motor cycles, and certificates will be awarded to all machines making a non-stop run, which will report upon hill-climbing, ease of starting and control, accessibility, silencer, stand and luggage carrier. The entry fees are one guinea for the trade, and 10s. 6d. for private owners.

THE Land's End to John o' Groat's Run being organised by the Auto Cycle Club for the coming year is receiving a considerable amount of support from a number of enthusiastic motor cyclists. Many of the "end to end" performers are coming forward and helping with their past experience, so that the event should prove, under such practical advice, a big success. Private owners are to be encouraged to enter, by the offer of a reduced entrance fee and special prizes, and we shall hope to see a good entry list resulting in a large proportion getting through and merely demonstrating the advance which has been made in reliability in the modern motor cycle, as considerable benefit should accrue to those firms who have gallantly stuck to this section of the industry.

THE Open Hill Climb for Tri-cars being organised by the Lewisham A.C., has been fixed to take place on River Hill on February 10th.

MOTOR BOATING.

A POPULAR RENDEZVOUS FOR MOTOR BOATING.—Durnham-on-Crouch Quay, showing Durnham Yacht Club en fête for one of the British Motor Boat Club's meetings last season.

MOTOR BOATING IN FRANCE—NEW REGULATIONS.

As a result of the Navigation Congress, the Yachting Club of France working in conjunction with the Automobile Club of France have passed a series of new rules, some of which—particularly those that determine the motor-power by the fuel or current consumption—constitute a radical departure from past usage. The following are amongst the fresh provisions:—

All boats are divided into three categories—*Canots* (pleasure boats of not more than 18 m. length), *Yachts* (pleasure boats of greater length than 18 m.), and *Bateaux à usages divers* (industrial craft), but, generally speaking, the rules refer to the first two categories, although they are also to apply so far as possible, and if required, to the third category.

Four sub-divisions—according to the nature of the power plant—are then specified, with the general idea that the craft belonging to each shall, as a rule, compete separately. These are:—For boats with (a) internal-combustion engines, (b) electric motors, (c) ordinary steam plants, and (d) flash steam systems; in no case does the nature of the fuel used affect the classification.

Then comes a further classification by which the boats in each sub-division are split up into (1) racers, and (2) cruisers, but it is stipulated that any boat can compete in both these classes, provided that it has obtained an official certificate for both.

Racers are placed together in either of four categories according to length—those of 8 m. or less, those of over 8 m. but not over 12 m., those of between 12 m. and 18 m., and those exceeding 18 m. Similarly there are four categories for the cruisers, but in this case according to their rating, this being calculated on a $\frac{L \times C}{P}$ formula which determines their handicap and time allowance. Although cruisers belonging to different categories may be allowed to race together, these categories define the four classes as those having a rating of 8 or less, of 8 to 37, of 37 to 124, and of more than 124, respectively. For the purposes of the formula $\frac{L \times C}{P}$, the length (expressed in metres) will be the arithmetical mean between that

on the water-line and that over all, while the displacement (P), expressed in metric *tonnes*, is to be taken on a salt-water basis with fuel tanks full, but without “*equipage*” on board. The motor-power (C) is, for all types of cruiser, based on the fuel (or, in the case of electric, on the current) consumption per hour, and is to be settled in advance by an official measurer, who will make a full load test of two hours’ duration before any certificate is issued; both the speed of the motor and the calculated mean speed of the boat will be noted on the certificate. A further rule insists upon a “reversing” gear being available on all craft, whether *canots* or *yachts*, and whether they be racers or cruisers.

THE MODIFIED M.M.A. RULES.

At a special meeting, called recently for the purpose, the Marine Motor Association decided to make some very important alterations and modifications to their rules. The new rules are as follows:—

The old Measurement Rules from the word “Classes” on page 16 onwards to the bottom of page 18 are cancelled, and the following new rules substituted:—

CLASSES.

	Rating.
Class A ... Not exceeding	75
„ B ... Exceeding 75, but not exceeding ...	250
„ C ... Exceeding 250, but not exceeding ...	1,000
„ D ... Exceeding	1,000

There are no restrictions on beam, freeboard, or m.p., in Classes, A, B, C, and D.

Cruiser Classes.—Sub-divisions of the Cruiser Classes:—

Sub-division 1 ... Not exceeding	25 ft. o.a.
„ 2 ... Exceeding 25 ft., but not exceeding ..	50 ft. o.a.
„ 3 ... Exceeding	50 ft. o.a.

Every cruiser to have a fixed cabin extending the whole width at the level of the gunwale, and for a length not less than 25 per cent. of the overall length of the vessel, with a minimum clear head-room of 4 ft. 6 in. throughout the length of the cabin, and for a width of not less than 2 ft. in the centre.

No vessel to be admitted to the Cruiser Classes whose motor

power exceeds $3\frac{1}{2}$ m.p. per ton, such tonnage to be measured by the following formula:—

$$\text{Tonnage} = (L - B) B \times \frac{1}{2} B.$$

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Where L = Length overall.

B = Greatest breadth to outside of plank.

No vessel to be admitted to the Cruiser Classes whose lowest freeboard, wherever found, is less than 25 per cent. of her greatest beam to outside of plank.

MEASUREMENT FEES.

		£	s.	d.
Class A	...	1	1	0
" B	...	2	2	0
" C	...	3	3	0
" D	...	4	4	0
Cruiser Classes	Sub-division 1	1	1	0
	" 2	2	2	0
	" 3	3	3	0

The Official Measurer shall collect the fees before measuring.

ADDITIONAL RULES.

Every vessel racing under the Rules of the Association must be entered in the Association's Register of Motor Vessels. The charge for such registration to be 2s. 6d., payable on application.

The Association will allot to any vessel so registered a number, which shall be considered the racing number of the vessel, and which shall be displayed upon a flag rigidly extended at least 2 ft. above the deck.

The number flags are not to be less in size than 12 ins. by 15 ins.; figures to be block Arabic, not less than 8 ins. high and $1\frac{1}{4}$ ins. thick. The flags will not be supplied by the Association.

The number flags for the various classes to be of the following colours:—

Class A	...	Red Ground, White Figures.
" B	...	White " Black "
" C	...	Light Green Ground, White Figures.
" D	...	Yellow Ground, Black Figures.
Cruiser Classes	...	Dark Blue " White "

Every boat racing under the Association's Rules is to be fitted with an efficient exhaust silencer.

The present time scale is cancelled, and Mr. Hope's curves of results of actual performances during the past season is to be used as a basis for the construction of a new time scale, which shall equalise as far as possible the chances of boats of varying types when racing together.

Monaco Meeting.—If the entry of a number of splendid motor boats can be relied upon to make a successful meeting, the Monaco meeting next year should prove a record. Already some of the best-known boats are reported to be amongst those which will take part, including 2 Napier racers, in addition to a 6-cylinder Napier of Mr. Lionel de Rothschild's, a Brooke racer, Trèfle-a-Quatre, New Trèfle, an Antoinette racer with a Levavasseur engine of 600-h.p. (48 cylinders), 3 Martinis, several De Dietrichs, "Loodet III.," an 18-metre Serpollet craft, 2 Richard-Brasier racers, 3 Mercedes, 2 Panhards, a Fiat, and several Italas.

CLUBS AND ASSOCIATIONS.

British Motor Boat Club.—Two lectures have been arranged to be held in the Craven Hotel, Craven Street, Strand, W.C. The first will be on "Screw Propellers," and will take place on January 18th, at 8 p.m., and will be given by Mr. Ramsay Smith.

The second lecture will be held about the middle of February, and will be on "The Practical Handling of Motor Boats," by Lieut. W. Windham.

An informal dinner will be arranged at the club before each lecture.

Society of Motor Omnibus Engineers, Limited.—We have received some further particulars of this organisation. The Society has for its objects, amongst others:—

1. To promote, encourage, and facilitate the growth of the carriage of passengers, and of mails or goods if carried in conjunction with passengers, by means of motor vehicles other than on permanent ways, for profit (herein referred to in general as the said motor traffic), and to promote the science and practice of motor omnibus engineering, and all branches thereof.
2. To promote the consideration and discussion of all questions affecting directly or indirectly the said motor traffic, and generally to watch over and protect the interests, as far as possible, of persons engaged in such traffic.
3. To enable persons interested in the profession and practice of the said motor traffic to meet and discuss, and to correspond, and generally to facilitate the interchange of ideas respecting improvements in the various branches of the science of motor omnibus traction and the publication and intercommunication of ideas respecting improvements in the said science.
4. To give to the legislature, and to public bodies and others facilities for conferring with and ascertaining the views of persons engaged or interested in the said motor traffic as regards matters directly or indirectly affecting that traffic or trades allied to it.
5. To promote excellence and perfection in the construction in that class of motor vehicles as are or might be commendable and serviceable in the said motor omnibus traffic or manufacturing trades.
6. To admit any persons to be either associate or honorary members of the company on such terms and to confer on them such rights and privileges as may seem expedient.

Membership is limited to engineers or engineer managers in charge of motor omnibus undertakings, or their approved assistant engineers or assistant engineer managers, and provision is made for both associate membership and full membership. The annual subscription is one guinea, with an entrance fee of a like amount. In

order to enable manufacturers and other persons interested in the work of the Society to become connected with it, subscribers of not less than three guineas per annum to the funds of the Society may be admitted and enrolled as associates.

It is provided, in regard to the constitution of the Council, that there shall be not less than five nor more than twenty members, and that not less than one-third of the Council shall be engaged in business partly or exclusively outside a radius of 20 miles from Charing Cross. We gave the names of the first Council last week.

The only honorary officers of the Society will be a President and Vice-President, the principal active officers, who will be elected by the Council, being a Chairman and Vice-Chairman.

At the last meeting of the General Committee of the Motor Union, the three following gentlemen were elected to life membership of the Union:—Mr. G. T. Langridge (Epsom), Mr. H. H. J. Baring, Esq. (Loughton), and Mr. F. H. Faviell, Esq. (Loughton).

THE Roads Improvement Association, Incorporated, announce a change of offices to 1, Albemarle Street, Piccadilly, facing St. James's Street, where all communications should for the future be addressed to the honorary secretary, Mr. Rees Jeffreys.

PUBLICATIONS RECEIVED.

Handbook of British Patents for Inventions. London: Day, Davies, and Hunt, 321, High Holborn. Price 6d.

Ordnance Survey Maps. Great Britain. Sheets 11 and 12. The Western Counties and Southern England respectively. Board of Agriculture and Fisheries, 4, Whitehall Place, S.W. Price 1s. 6d. each.

London County Council. Report by Chief Officer of Tramways on his Visit to America, May, 1905. London: P. S. King and Son, Great Smith Street, Westminster.

The Yachtsman. Winter Number, 1905. London: E. H. Hamilton, 143, Strand. Price 1s.

Catalogues.

Westinghouse, 1906. The Westinghouse Company, Norfolk Street, Strand.

"Scout" Marine Motors, 1906. Dean and Burden Bros., Limited, Salisbury.

Springs. List No. 14. Herbert Terry and Sons. Redditch.

Ariel Simplex Cars. The Ariel Motor Company, Long Acre, W.C.

Continental Tyre Notebook for 1906. The Continental Tyre and Rubber Company (Great Britain), Limited, 102, Clerkenwell Road.

Desk Calendar for 1906. R. T. Lang, 27, Chancery Lane, W.C.

RACES, RECORDS, AND TRIALS.

MIDDLETON PNEUMATIC HUB TRIAL.—The Florentia car (the light one in the centre), fitted with Middleton Pneumatic Hubs, at the Wheatsheaf Hotel, Sunningdale, upon the last day of the trial on December 22nd. The other cars in the picture are all fitted with similar hubs, and were driven out to "receive" their companion on the nearing of the completion of its task.

Middleton Pneumatic Hub Trial.—This trial, under the observation of the Automobile Club, over a distance of 4,000 miles, which commenced on November 21st, has been continued daily, as far as possible, since, terminated on Friday of last week. The car used was a 16-20-h.p. 4-cylinder Florentia. The test has been a successful one, especially in view of the heavy state of the roads which prevailed at the early part of the trial. The first week's run was 978 miles, one of the pneumatic tubes, owing to a leaky valve, having to be replaced at the end of 900 $\frac{1}{2}$ miles. The mileage for the second week was 819 $\frac{1}{2}$ miles, one day having been lost through necessary adjustments to the car. One hub during the week required pumping up and another was replaced. After this the hubs ran through the next week without any repairs or adjustments of any kind, and on Friday, December 22nd, the test was successfully concluded over the 4,000 miles with a few more miles to spare. The official details of the trial are at present not available.

Scottish Reliability Trial for 1906.—The date for this trial, under the auspices of the Scottish A.C., has been tentatively fixed for the second week in June.

THE start of the Tyre Trials of the A.C.G.B.I. has been postponed from February 1st to February 15th, the last day for entry now being fixed for January 31st. The Speedometer and the Lamp Trials, the rules of which we published last week, will be held at the same time, and in conjunction with the cars entered for the Tyre Trials.

BARON HENRI DE ROTHSCHILD has offered, through the French Académie des Sports, a prize of 1,000 francs for the best registering speedometer for motor cars.

Road Records.—The A.C. de France announce officially that they have recorded the following record performances, all of which we have, at the time of their accomplishment, duly announced in our pages.

1. Flying Kilometre for Voiturettes: Barriaux, Vulpes car, 33 $\frac{3}{8}$ s.
2. Flying Kilometre for Heavy Vehicles: F. Dufaux, on Dufaux Racer, 23 secs.
3. Flying 5 Kilometres for Heavy Vehicles: Colomb, on Mors car, in 2m. 0 $\frac{1}{2}$ s.

IT has been decided at the International Conference of Automobile Clubs in Paris that disqualification of any driver by any individual club, shall be at once notified to the rest of the clubs by telegram, the telegram to be confirmed in writing the same day, such notice of disqualification to take immediate effect, as from the receipt of the telegram.

1906 Fixtures.—At the Calendar Congress, held in Paris last week, the majority of the more important dates for events during 1906 were arranged, the chief of which we give below. The idea of this congress is essentially a good one, and judging by the expressions of opinion of the delegates who attended it, is likely to be in future years more officially recognised. By this means we trust that it will be of more practical value than hitherto, as experience has shown that, in spite of the arrangement of dates made at the congress in previous years, with very few exceptions they have been altered and shifted about two and three times before finality has been reached. Probably in the same way this year it will be found to be equally misleading, but as a guide to the general scheme of events for the coming year the dates named are of interest. The French club have been unable to fix definitely the date

either of their big racing event or of their 5,000 kiloms. tourist vehicle contest, but from the middle of June to the middle of July has been tentatively "ear-marked" for the French club, this period probably including, in addition to the speed race, the heavy vehicle contest and a Paris-London motor 'bus event. The following are the other main dates:—

Jan. 12-25	...	Brussels Salon.
Feb. 6-18	...	Berlin Exhibition.
Mar. 8-15	...	Anti-Skid Trials (A.C. Seine and Oise).
" 8-21	...	Cannes Motor Week.
" 15-28	...	Vienna Exhibition.
" 25-31	...	Nice Motor Week.
April 1-15	...	Monaco Motor Boat Meeting.
" 2-8	...	Milan-San Remo Voiturette Trial.
" 16	...	Meyan Cup at Nice (Motor Boats).
" 17-24	...	Long Distance Mediterranean Race (Motor Boats).
May 6	...	Targa Florio.
" 13	...	Voiturette Competition (A.C. Austria).
" 13-24	...	Motor Cycle Tour de France (A.C.F.).
" 15-31	...	Endurance Competition (A.C. Milan).
" 27	...	French Eliminating Trial (Moto Club de France).
June 1-3	...	Electric Vehicle Contest (A.C.F.).
" 9-15	...	Herkomer Cup.
" 28-29	...	Kiel Regatta.
July 14-17	...	Ostend Meeting (Flanders A.C.)
" 22	...	Havre Speed Mile Trials (<i>L'Auto</i>).
Aug. 6-18	...	Marine Fortnight (British Motor Boat Club).
" 14-19	...	Coupe de Trouville.
" "	...	Circuit des Ardennes.
" 26-Sept. 2	...	Brescia Week.
Sept. 2	...	Florio Cup.
" 10-15	...	One-Third Litre Criterium (<i>L'Auto</i>).
" 15-16	...	Mont Ventoux Hill Climb.
" 23	...	Semmering Hill Climb.
" 23	...	Auto Cycle Club de France Cup.
Oct. 7	...	Chateau Thierry Hill Climb (<i>L'Auto</i>).
" 14	...	Maison Lafitte Motor Boat Meeting (<i>L'Auto</i>).
" 21	...	Speed Kilometre on the Flat and Hill.
" 28	...	Gaillon Hill Climb (<i>L'Auto</i>).
Nov. 1-16	...	Berlin Exhibition.
Dec. 2	...	Coupe de Salon (<i>L'Auto</i>).
" 7-24	...	Paris Automobile Salon.

Contest of Public Vehicles for Town Use.—A contest took place in Paris last week for motor hackney vehicles plying for hire on the Paris streets. A good list of entries was secured, the vehicles being divided into two classes, viz., (1) petrol and steam vehicles, and (2) electric vehicles, these being again subdivided into categories according to their cost value. The test was over a distance of about 100 kiloms. over ordinary streets in Paris, and the judges in determining their classing, under the rules, took into consideration the regularity of running, fuel consumption, and appearance and comfort of the body of the vehicle. Any involuntary stoppages were noted throughout the run, and electric vehicles, when recharging or taking on fresh batteries, were treated, so far as stopping time was concerned, as broken down.

The first place in the awards in the Petrol Sec-

tion falls to the Aries with a gold medal, the Automoto gaining second with a silver-gilt medal. In the Electric Vehicle Class the Vedrine firm obtain the gold medal, the Electromobile Company the silver-gilt medal. The winners of silver medals and diploma recipients are given in our table.

The following are the vehicles which took part, together with the times occupied:—

Class I.—Steam and Petrol Cars.

CAT. II.—Total Value 6,000 to 8,000 francs:—

No.	Car.	Weight laden kilogs.	Time (100 kil.) h. m. s.	Medals.
14	Ader	1,668	3 45 58	Silver.
19	Bayard	1,390	4 52 0	

CAT. III.—Value 8,000 to 12,000 francs:—

9	Aries	1,584	3 56 42	Gold.
7	Brouhot	1,812	3 58 10	Silver.
15	De Dion	1,456	4 4 35	Silver.
17	Gladiator	1,599	4 24 16	*
2	l'Electrique	1,440	4 47 33	*
13	Vinot	1,654	5 2 19	*
5	Brouhot	1,457	6 34 48	

CAT. IV.—Value over 12,000 francs:—

6	Delaugère	1,791	3 39 30	Silver.
1	De Dietrich	1,676	3 46 20	Silver.
20	Automoto	1,931	3 53 54	Silver Gilt.
11	Florentia	1,833	4 15 59	*
18	Clement	1,582	4 27 14	*
10	Aries	1,810	4 30 54	Silver.
22	Pilain	2,010	4 43 10	*
12	Decauville	1,720	4 47 49	*
3	Buire	1,740	5 22 0	*

* Diploma of the A.C. de France.

Class II.—Electric Vehicles.

CAT. II.—Value 5,000 to 8,000 francs:—

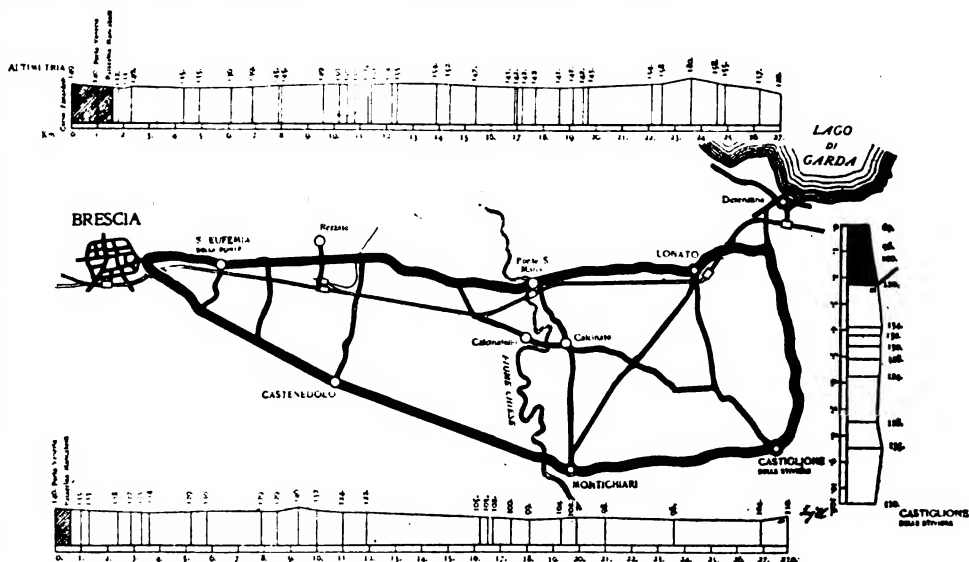
30	Galliette	1,580	Abandoned.
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CAT. III.—Value 8,000 to 12,000 francs:—

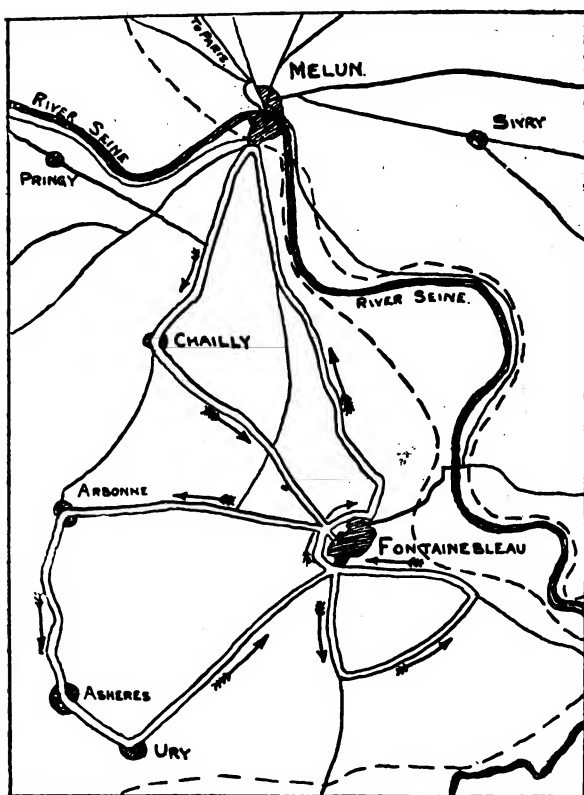
37	Jeanteaud	1,618	Side-slipped and broke axle.
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CAT. IV.—Value over 12,000 francs:—

36	Krieger	2,107	4 25 28	Silver.
39	Vedrine	2,066	4 33 12	Gold.
41	Electromobile	2,128	4 43 40	Silver Gilt.
31	l'Electrique	2,723	6 49 53	Silver.
34	Milde	2,080		
35	Krieger	2,031	Collided.	
40	l'Electromotion	2,238		



Official Sketch Map of the Brescia Circuit, where the important Italian racing events will take place in September next. The contour surrounding the course conveys a rough idea of the "give and take" character of the roads.



== PROPOSED COURSE. --- MAIN ROADS. . . . RAILWAYS.

THE BIG FRENCH RACE, 1906.—Map of the proposed Fontainebleau Course, of which we gave some pictures last week. The intricate nature of the three circuits, as then described by us, can be gathered more clearly from this sketch map.

Trials of Suction Gas Plants.—It is announced by the Royal Agricultural Society of England that they intend holding some important trials of suction gas producers and engines in connection with the Derby Show next year, and propose to award a Gold Medal and a Silver

Medal as first and second prizes. The following is a *résumé* of the regulations under which the trials are to be conducted.

Each plant is to be of from 15 to 20-b.h.p. The engines are to be fixed by the competitors in a special shed, which will subsequently form a part of the Show, and every engine is to be fitted with all necessary testing apparatus to the approval of the Society's consulting engineer, including dynamometer brake, water trough for cooling the fly-wheel, indicator-gear, revolution-counter, and explosion-counter.

Specifications and detailed drawings must be sent to the secretary at 13, Hanover Street, W., on or before March 15th; and the actual date on which the Trials are to commence is Monday, June 18th.

The actual trials will consist of long duration runs primarily using anthracite coal, but other runs will also be made with coke as fuel; in both cases the fuel will be provided by the Society. For the first full-load trial, a fixed quantity of coal will be given to each competitor, who will be required to start the plant from cold, and to get the engine running at full power as soon as possible. The time of lighting up will be noted, but the time recorded, so far as fuel consumption is concerned, will be taken from the commencement of the run. After running for nine hours under constant load, the engines will be shut down for the night, to resume running on the following day, and at the conclusion of the trials all unconsumed coal will be credited to each competitor. Half-load trials on precisely the same lines, but of shorter duration will then follow, after which there will be a "no-load" trial of two hours' duration, although the coal consumption will not be recorded in connection with it. A stipulation is made that the fan is not to be worked by hand during the half-load and no-load trials.

It only remains to be said that the special points to which attention will be directed are: (1) attendance necessary; (2) general design—including facility of cleaning—and space occupied; (3) regularity of working; (4) fuel and water consumption; (5) price; (6) relative proportions of gas producer and engine; (7) volume swept by piston relative to b.h.p.

MIDDLETON PNEUMATIC HUB TRIAL.—Completion of the 4,000 miles on Friday last. Another car, also fitted with Middleton hubs, meeting the Florentia Car on the road upon which the official trial has taken place. A little incident "stage-managed" for the purpose of recording the completion of the 4,000th mile. Note the "special" milestone.

CORRESPONDENCE.

* * The name and address of the writer (not necessarily for publication) MUST in all cases accompany letters intended for insertion, or containing queries.

£150 FLYING MACHINES.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—With reference to the recent paragraph in your paper giving particulars of some information about a new flying machine, said to have been conveyed to the Press by me, I may mention that this is a misunderstanding. The information was obtained from a report of a lecture I gave on "Aeronautics" before the Royal Engineers at their Institution at Chatham, and is not quite correct.

The first full-sized machine would probably cost about £150 to build, and further machines a good deal less. The model that I tested was on a small scale, with one square foot of active surface.

Since I made my tests the inventor has got still better results, as he tells me that he obtained a lift of 283 lbs. per brake-horse-power with an active surface equal to 16 square feet per lb. raised. When the driving power was increased the total weight lifted was trebled, thus reducing the active area to 5 square feet per lb. lifted, but the efficiency was reduced, the weight lifted per brake-horse-power being only 138 lbs. The calculated lift of aeroplanes and screws varies according to different authorities from 122 to 231 lbs. per horse-power.

The importance of these tests is the fact that none of the true flying machines have as yet obtained anything like this sustaining power per horse-power used. Professor Langley's complete machine weighed 30 lbs., had 54 square feet area, and developed 14-h.p., that is, the lift was 20 per brake-horse-power. Sir Hiram Maxim's lift at 42 miles per hour was about 10,000 lbs. with 360-h.p., or nearly 29 lbs. per horse-power. Few airships using balloons have a lifting capacity from the gas of more than 200 lbs. per brake-horse-power, and have the additional weight and resistance of the balloon.

With the above lift of 283 lbs. the speed was not taken, but was probably about 5 or 6 miles per hour. The speed could be increased to practically anything within reason, the lifting power then being proportionally decreased. I think that better results will be obtained from the larger-sized machines.

Yours faithfully,
F. L. RAWSON.

Dec. 20th.

6-CYLINDER CARS.

To the Editor of THE AUTOMOTOR JOURNAL.

SIR,—I have just returned from a visit to the Automobile Show in France, and must express my admiration for the magnificent lighting effects that they have been able to obtain in the beautiful Grand Palais. They are of a character which we cannot hope to attain over here until we get an exhibition building suitable for the dignity and the importance of the automobile trade.

As one, however, most keenly interested in the continued success of the British automobile industry, I was very pleased to find the trend of events in regard to manufactures, and to find that there was an absolute opportunity for the British trade to take up a position, at any rate in the high-class trade, that would put them to a large extent in an unassailable position, unless sweeping changes come along which the British trade had not foreseen. I refer particularly to the 6-cylinder development. I know, and have known for some considerable time, that this 6-cylinder principle for powerful cars must come and must be embodied on every type of powerful car, for the public realise and appreciate the advantages of six cylinders, and the necessity for having not less than six cylinders if they wish a powerful motor car to run with the maximum of comfort.

I have preached the gospel of six cylinders more or less strongly for a long time now, and personally, in the way of orders and fortune, I am reaping a benefit even beyond my dreams, but the time has now come when I realise that a market is opening up far greater than my firm can hope to keep for itself, or meet more than a portion of the demand, and I therefore want those British manufacturers whose works are capable of making 6-cylinder cars, to really learn all about them, and, if after learning about them they are not convinced of the business waiting for all of us who can manufacture this style of car, then, at any rate, they will only have themselves to blame if they are not able to meet the business as it arrives, and to assist them in this direction I shall be only too pleased to put a 6-cylinder car at the disposal of genuine British manufacturers for, say, any reasonable period—a day or so—to try for themselves the advantages the 6-cylinder principle holds, and

why I know and so strongly believe that for absolutely the best class powerful car, it must oust the 4-cylinder. It is not yet too late for those in Great Britain to take this opportunity of getting into the business that is waiting for them.

Abroad we have the Panhard trying the principle, so far without commercial success, because I admit there are difficulties in the manufacture of six cylinders. We have the Mercedes (in the person of Herr Maybach, works' manager and designer) admitting in the public press that the main object of builders of the 6-cylinder engine is to simplify the change-speed-gear mechanism and also to reduce the necessity for frequent speed or rather gear changes. He, however, qualifies his remarks by saying that these good points are only required on a racing car, and therefore a Mercedes racer for 1906 will have six cylinders.

Personally, I believe, and I think everyone will agree with me who can see at all ahead, that this is merely a stepping stone to the introduction of a touring Mercedes of six cylinders for 1907. We find both Clement and Gladiator with 6-cylinder touring cars for 1906.

It was heard from the lips of M. Théry that M. Brasier was working on a 6-cylinder racer, and that Théry certainly thought that six cylinders were absolutely necessary for a racing car for 1906. It is also rumoured that the Hotchkiss Company are also working on a 6-cylinder.

There was, of course, a Cotterau 6-cylinder car at the Exhibition, but obviously in the experimental stages, and when on top of all this you read extracts from newspapers from countries so far divided as the *Horseless Age*, of New York, of November 22nd, the *Allgemeine Automobil Zeitung*, of Vienna, the *Automobile*, of America, of December 7th, *Les Sports*, of December 14th, and *L'Auto*, another French paper, all putting forward various and different arguments in favour of six cylinders, it should be clear to those who ought to be able to see ahead the rush that is setting in for 6-cylinder cars due to their merits, and which rush, if the British manufacturer will take my advice, he will be ready to meet and get a certain start on the bulk of Continental makers.

He is then manufacturing a British designed vehicle, and every other country in the world is in the position of merely being a copyist of that British vehicle. It is a chance for the British manufacturer, and he should take it, and I can give him some help and will willingly do it.

The Napier factory is open to anyone to see that nearly all the orders in hand are for 6-cylinder cars, and they are being manufactured by hundreds as fast as possible.

Dec. 21st.

Yours truly,
S. F. EDGE.



Sportsmen and the Automobile.—Masters of Hounds, with a few exceptions, have not been at all slow to recognise the utility of the automobile from the sporting point of view. In fact, it is very largely due to their initiative that the automobile has recently enjoyed so much popularity in bringing members of the field to meets, while its superiority to the ordinary dog-cart or trap in enabling something of a hunt to be seen from the roads, has rendered it a general favourite with those who enjoy the sport from this second line of attack. Mr. Sanders, a Master of Hounds in Somersetshire, who is one of the many sound converts amongst M.F.H.'s to the use of the automobile, has recently written a letter to Mr. Henry Norman, M.P., full of praise for the virtues of the small light car, particularly in his district, where the roads are unsuited to heavier types. He is enthusiastic in regard to the extent to which the light car enables him to dispense with railway journeys. He is a great horse owner, and, as such, his testimony to the fact that horses are not nearly as frightened by motors as by traction engines or steam rollers, is interesting. The notion of children being scared off the roads is, in his opinion, all moonshine. Mr. Sanders keeps some five-and-twenty horses, so he is a good authority on equine peculiarities, in which connection he states that a coach-and-four coming along the road frightens an ordinary horse a great deal more than an automobile does.

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Catalogues.
List of Engineering Instruments. Glasgow: Whyte, Thomson and Co., 144, Broomclaw.
List of the Motor Cars. The Motor Car Company (1905), Limited, 168, Shaftesbury Avenue, W.
How to Buy a Motor Car. Manchester: Horsfall and Bickham, Pendleton.
1906 Brochure of Cars. Brotherhood-Crocker Motors, Limited, 10, Hanover Square, W.
"The Coventry" Chain of Automobiles. Coventry: Coventry Chain Company, Limited, Dale Street.
The New 24-h.p. Morgan Cars. Morgan and Co., Limited, 10, Old Bond Street, W.
Motor and Motor Cycles. Glasgow: C. E. Strange Ewen, 45, Hope Street.
Motor Cars. London and Coventry: Messrs. Humler, Limited.
Star Cars. Glasgow: The Star Engineering Company, Limited, Glasgow: South Street.
Union Motor Cycles. Glasgow: South Street.
Union Motor Cycles. Glasgow: South Street.
Union Motor Cycles. Glasgow: South Street.

An artistic and useful paper-knife has reached us, which has been issued to their friends by Messrs. Charles Jarrott and Letts, Limited, at 45, Great Marlborough Street, can, for the mere asking, obtain one of these useful desk companions. The embossed design on the handle is that of the Lorraine Cross and Thistle.

London Town.

(London: Raphael Tuck and Sons. Price 1s. net.)

THIS is another of the many excellent examples of the perfection to which coloured process work for the illustration of books has been brought. The idea of the pamphlet is that of a fragmentary guide to London, arranged in the form of a walk from Fenchurch Street to the Marble Arch, taking most of the principal objects of interest on the way. Certainly the coloured illustrations are admirable, though they give a scarcely accurate impression of London as enjoying the clearness of atmosphere which since the Jubilee year has been seldom observed. Of course, in a work of this kind the difficulty is to know what to leave out, but where so much has been successfully included it seems rather strange that historic Whitehall should be omitted altogether. The coloured process work is, on the whole, superior to the descriptions by which the illustrations are accompanied, in which crudities of style are sometimes observable, as where Westminster Abbey, "this monument to England's glory," is described as "the pride of every Britisher." It is, perhaps, rather rash, too, to inform us that Cleopatra's Needle was quarried while Moses was in the land of the Pharaohs, as most Egyptologists agree that it is distinctly older than Moses. And why, oh!

why, has the terrible Temple griffin been selected as a frontispiece? As an example, however, of what the book is intended to illustrate, namely, the application of coloured process work to book engraving, "London Town" is eminently successful.

The Fan.

By CHAS. H. INNES.

(Manchester: The Technical Publishing Company. Price 4s.)

THIS little work is a good practical treatise on the fan, though of course the fans dealt with are mainly large ventilating fans, requiring high power for driving them, and designed either for delivering air under pressure or ventilating mines and buildings. The question of designing highly efficient fans is not one that presents itself in an acute form to the automobile engineer, as there is no particular necessity to obtain a high degree of efficiency in the fans that are arranged for drawing air through radiators. At the same time the subject may be useful to works managers in deciding the rival merits of fans for ventilating purposes on a large scale.

Auto Fun. Pictures and Comments from "Life."

(London: Geo. G. Harrap and Co. Price 5s.)

THIS is a reproduction of a number of cartoons on automobile topics which have appeared in our transatlantic contemporary, *Life*. The drawings are admirable, and in many cases the humour appeals even to the prosaic resident in the British Islands, but on the whole one feels, on going through the book, that one requires, in some respects, to be educated up to American humour, and we cannot altogether appreciate it in its fulness without a preliminary course of training. A good laugh may be safely predicted, however, for all, particularly the initiated.



A New Anti-Shock Device.—It is not a very frequent occurrence for an automobilist to be pitched out of his car with such verve as to come precisely head downwards either on the high road, against an opposing wall, or an unsympathetic policeman, but should such an occurrence take place, a well-known outfitter of Cheapside has provided a palliative. It takes the form of an ordinary cloth cap with an internal crown of pneumatically inflated indiarubber balls. These deaden the shock of impact as far as the skull is concerned, though they apparently transfer it to the neck. At least that is what the office-boy says who has been put to try it against a brick wall for ten minutes steadily. That it prevents the impact affecting the brain of the wearer was satisfactorily demonstrated, as no difference from his usual smartness was noticed, as regards the experimenter, at the termination of the tests. We are anxious to organise a demonstration of the virtues of the appliance by precipitation from an automobile, and hope to arrange for a representative of the inventor to come out with us in a car wearing the cap, when we will unexpectedly clap on the brakes fully, and await the result with confidence. We are pleased to know that "the balls always remain inflated," and that it is not, therefore, necessary for the wearer to feel for his pneumatic pump whenever he anticipates an accident.

THE Hackney Furnishing Company, who are, as everyone knows, very go-ahead people, are organising a special service for facilitating the transaction of business with provincial purchasers. A four-in-hand coach is to leave their premises every Monday morning, and travel through the principal towns of the home counties the names of which will be duly advertised, together with the address at which the representative of the Company will stay. As the

Sir Archibald and Lady Macdonald in their new 40-h.p. "De Dietrich Car.

AMERICAN inventiveness has always been displayed in the improvements they effect in language. The latest of these is the new plural, "chasses" for "chassis," for which our contemporary, the *Motor World*, is responsible. Of course, "crises" is the plural of "crisis," but then one word is Latin and the other French, which, after all, sometimes makes a difference.

SOME proceedings, in which the decision can hardly be regarded as anything but extraordinary, took place recently before the Lord Chief Justice and two other judges sitting *in banco* in reference to the Brighton Speed Trials on the Madeira Road last summer. An application was made on behalf of a Brighton ratepayer for a *certiorari* to quash two orders made to the Borough Treasurer to pay £2,500 and £550 out of the general district fund. The Lord Chief Justice observed that a merely extravagant expenditure which was here alleged, as the expenditure was involved for putting a tarmac surface on the Madeira Road, was not a point that could be raised as a question of law, and Mr. Justice Ridley asked if it was for the benefit of the motor car people rather than for that of the ratepayers. Mr. Casson, counsel for the objecting ratepayer, then at once made the amazing statement that the Automobile Club took all the profits and the Corporation had to bear all the expenditure, and that they got none of the receipts. On hearing this statement, the Lord Chief Justice at once said, "You may take a rule." When the actual action comes to be tried, however, it may be safely assumed that evidence of this astonishing statement will be required.

coach goes through the principal streets of the towns it visits, it will only be necessary for those intending to transact business to signal the driver to stop, when they will at once receive a visit from the firm's representative, who will explain the methods and system of business adopted and show sample models and photographs of goods, so that buyers may be saved the trouble of a journey to London. Clients of the Company who wish to use the coach to travel from one town to another will be allowed to do so. Considering the general enterprise of the Hackney Furnishing Company, we are somewhat surprised to find them adopting the old-fashioned coach-and-four for their propaganda. A suitably constructed motor vehicle would be much more expeditious and far better suited to their requirements, while it would, most undoubtedly, bring in more business.

A particularly fine vehicle is that shown in the above illustration, this being one of the latest four-cylinder 25-30-h.p. cars that the Ariel Motor Company are building for next season. It is fitted with a special double phaeton Tulip body, to the order of Mr. W. Garnett, of Clitheroe, Lancashire, and a considerable amount of storage space has been rendered available at the back, as well as beneath the front seats. Instead of the usual style of upholstery, with dust-collecting buttons, this portion of the body is finished off on a new principle that gives the seats an exceptionally tidy appearance, while the comfort of the occupants at the back has been carefully studied inasmuch as the seat affords ample room for three persons, and the wide doors can be swung full open—quite clear of the mud-guards.

The Paris Salon.—On Sunday last, the Paris Automobile Salon finally closed its doors for this year, after having run its brilliant course. The effect of holding the Olympia Show first, however, has taught the French makers a sharp lesson. British buyers have been scarce, if not altogether absent, and the leading firms have not been slow to grasp the trend of affairs. Already they are planning to forestall Olympia Show next year by having an exhibition of their own as early as October. What the A.C. de France will say to this move, and how they will meet it or bow to it, remains to be seen. At present the date for their next Salon is provisionally fixed for the same as this year—December 8 to 24. The awards for stand decorations, construction of body work, &c., are as usual announced. Amongst those high up in this list of honours for cars, we notice:—Grand Prix: De Dion Bouton, Delaunay-Belleville, Bayard, Darracq. Gold medals: Hotchkiss, Richard-Brasier, Renault, De Dietrich. Silver-gilt: Fiat, Mildé, Coteriau, Nala, Leon Bollee, Gobron-Brillie, &c. In the sections for lamps and tyres, Duceillier is to the front with a gold medal; Michelin and Samson secure silver-gilt medals; Dunlop, Continental, and Falconnet-Perodeaud receive silver medals. In the Salon Lottery, which was drawn on Sunday, the big prizes are an 8-h.p. De Dion Bouton car and a "Gallia" electric vehicle. Ticket No. 343,388 has won the former, and No. 94,667 the latter.

AN indignation meeting of cats has been held in the metropolis, and other similar meetings will, we believe, soon take place in the provinces, the felines having learned that the latest form of fashionable wear for motoring consists of cat-skin gloves with the fur and all intact, the fur of a well-nourished pussy being found particularly glossy and attractive. Possibly this new fashion may account for the phenomenon which residents in the metropolis have recently noted of a very decided diminution in the number of London cats. It

One of the 1906 model 15-h.p. four-cylinder De Dion-Bouton Cars just introduced into this country. The car is somewhat lighter than the 1905 model. The engine has a bore of 90 mm. and a stroke of 100 mm., and is controlled by a hand-lever above the steering wheel which operates on the throttle valve. Particulars of other new models for 1906 appeared in our issue of October 28th. Mons. Bardin, the manager of the De Dion Bouton Paris depot, is at the wheel, and another very prominent official of the company, M. Lemarchand, head of the frame department, is in the tonneau.

is a better fate than the Herne Hill Physiological Laboratory!

A WRITER in the *Lady of Fashion* has been working herself into quite a "state" over the ill-treatment of London 'bus horses, in regard to which she is in most cases thoroughly justified. "Surely," she concludes, referring, of course, to the replacement of the horse 'bus by the motor vehicle, "it was God himself who invented motors." Considering that some 20,000 horses have already been displaced from tram service by the electrification of the tram lines, the effect which will be produced when motor omnibuses become universal can be more easily imagined than estimated. Whether the displaced horses will for the time being find themselves better off than they were before may, considering the manner in which useless horses are generally treated by their supporters and admirers, reasonably be doubted.

ONE of our Asiatic readers sends us from Siam a little monthly magazine, entitled *Siam Engineering* (The Journal of the Engineering Society of Siam). This is a brightly written and interesting engineering publication, and we note with special satisfaction that a large part of the present number is devoted to the automobile question, a paper read before the society, by Mr. Westenholz, dealing with the proposal to construct a motor road to Penang. From Bangkok, we learn that motors have become a regular feature of the landscape, and that the roads are so good that they hardly ever puncture their tyres except when they are frequently compelled to cross the tram-lines. Other references to automobile topics appear in *Siam Engineering*, and one of distinct interest to car owners and tyre companies is that except for very light cars the pneumatic tyre appears to be a failure in the tropical East, owing no doubt to the general high prevailing temperature.

One of the latest 12-15-h.p. Touring Cars now being supplied by the New Arrol-Johnston Company. This model is of the same type as those which secured first and fourth places in the Tourist Trophy Race this year. In last week's issue we completed a fully illustrated article, in which the construction of this very satisfactory type of vehicle was described in detail.

THE baby that was born on the top of the Vanguard omnibus, and which has been christened "Vanrita," to whose notorious advent into this world we referred at the time, has created quite a furore amongst employees of the London Motor Omnibus Company, and they have all clubbed together to make a presentation to the infant on the solemn and auspicious occasion of its being transferred from long clothes to short.

AN "omnichauf," which is a new though not very euphonious term for the driver of a motor 'bus, is said to be in something of a quandary for a means of paying homage in the customary omnibus style to Lord Rothschild, who every Christmas presents a very large number of omnibus drivers in the Metropolis with a brace of pheasants. The omnibus drivers in consequence always decorate their whip or harness with the Rothschild colours. Some of the lively writers in the daily Press want to know what the "omnichauf" is to tie his colours on to. Perhaps, without the exercise of too much ingenuity, he might try the steering wheel.

Reduced facsimile of the Diplome d'Honneur issued by the Automobile Club of Hungary in connection with their Exhibition last June. This has been awarded to the Wolseley Tool and Motor Car Company, whose cars were exhibited there, as we recorded at the time of the opening of the Show.



COMMERCIAL POINTS.

RECENTLY we published a photograph of Mr. John Hargreaves' Napier racer, which had been converted into a luxurious touring car. We learn that this conversion was made by Messrs. Hill and Ball, of Yeovil, the whole body being designed and the work carried out by that firm.

CAPTAIN DEASY will be joined, as directors for the purpose of exploiting the new "all-British" Deasy car, by Sir Richard Waldie-Griffith, of Hendresyde Park, Kelso, Sir Robert W. B. Jardine, director of the Caledonian Railway, of Castle Mill, Lockerbie, and Mr. K. H. Buchanan, director of H. H. P. Deasy and Company, Limited, general manager of the London Power Omnibus Company, Limited, and director of the Welsbach Incandescent Gas Light Company, Limited.

THE Duke of Portland, late Master of the Horse, and Earl Sefton, the new Master of the Horse, are both owners of 40-h.p. De Dietrich cars.

THE Road Carrying Company, Ltd., of Liverpool, have been considerably extending their business, and we understand are doing an increasing trade in handling well-known cars. They have just supplied Richard-Brasier cars to Sir Thomas Neave, Bart., Mr. R. E. Birch, and Mr. E. S. Edgar, and through the company, Sir William B. Forwood has secured an Argyll model. Sir William, it will be remembered, is a member of the Royal Commission sitting on the Motor Car Acts. In the commercial vehicle department, the Liverpool Bon Marché has just placed a repeat order for two delivery vans, making four in all, which this firm have now in constant work. Altogether, we learn from Mr. E. A. Rosenheim, the manager, that trade in Liverpool is pretty brisk.

"SIX AND SIXTY."—Pictures from an original season's greeting card from Mr. and Mrs. Charles Jarrott, who are at the wheels of the "6" and the "60" in the left and right pictures, respectively.

MR. S. F. EDGE writes us in regard to a note which recently appeared in reference to a green door of a motor car being found on the road. He informs us that he has just heard that the Duke of Connaught lost such a door from his 6-cylinder Napier when returning from Woolwich the other day. Possibly the finder may, upon learning this, be anxious to return his find to its Royal owner.

THE Motor Exchange of Great Britain propose holding on the 17th of January their first auction sale at their premises at Boundary Road, Notting Hill, W. The auction will take place in the grounds of the company, where intending purchasers can see the cars running round the track during the sale. For two days previous any motorist can inspect the cars which will be for sale, and will be able to try them round the track.

A NEW catalogue is to hand from the Electromobile Company, Limited, which, like all the productions of this company, is a pattern of neatness and conciseness. The methods already adopted by them has made the electric brougham one of the most conspicuous objects of the London streets, and thereby helped forward in many directions the conversion of anti-motorists. A new system has been introduced by the company which is likely to be beneficial to their customers, as owners can now "job" from them the batteries and tyres, and thus effect a considerable saving in the first cost of a carriage. The company's garage being in such a central position as Curzon Street, Mayfair, is important, as enabling them at a moment's call to quickly reach any point of fashionable London.

THE Samson Leather Treads and Tyre Company, Limited, advise us that they have removed to larger and more convenient premises at No. 1, New Burlington Street, W.

THE Metropolitan Garage Association have opened premises at 12a, Palace Street, Victoria, opposite Buckingham Palace. The firm inform us they have made arrangements for hiring out cars of the latest pattern for either short or long periods, and they are able to supply lock-up coach houses for any sized cars, so that owners can contract for permanently garaging their vehicles with them. Facilities for repairs are provided on the premises, and petrol, lubricating oil, etc., are stocked.

MESSRS. SEYMOURS, LIMITED, write us as follows:—"It having come to our notice that our name is being associated with that of the late "Dixi Motors, Limited," we shall esteem it a favour if you would kindly make known through the medium of your valuable paper that, although this Company has taken over the sole agency of the "Dixi" car, it has otherwise no further connection whatever with the before-mentioned Company.

COMPANY DOINGS.

Palmer Tyre, Limited.—At the eleventh annual general meeting of the Palmer Tyre, Limited, the chairman, Major Leonard Darwin, presided, and in moving the adoption of the report, said the results were satisfactory, considering the severe competition and the high price of rubber. They had made a new agreement for management with the Indiarubber, Gutta-percha, and Telegraph Works Company, under which they would receive for about fourteen years a royalty of at least £5,000, and possibly more. This year it amounted to £6,753 14s. 4d. The capital of the Company had also been increased from £48,000 to £60,000, in order to purchase from the Indiarubber Company certain valuable patent rights in connection with motor tyres. They had, in short, sacrificed their immediate prospects to make their position quite secure, for several years to come. It would, he said, be obvious from the accounts that a larger dividend than 6 per cent. might have been declared, but by placing a considerable sum to reserve annually, the directors hoped that the business would be worth its par value at the end of the present management agreement.

With regard to motor tyres, he thought that their present season's make was very much superior to what they had made in the past.

The Scottish Motor Engineering Company, Limited.—The first statutory meeting of the Company was held at Granton on Thursday last week, Mr. Wm. Alexander, chairman, presiding. In moving the adoption of the report, Mr. Alexander spoke of the aims, progress and prospects of the Company, while in regard to the property itself, he said the shareholders had that day an opportunity of inspecting and satisfying themselves as to the value of the buildings, plant, and machinery they had acquired.

The response to the directors' call for capital had been favourably received, and he took that opportunity of clearly stating that the Scottish Motor Engineering Company, Limited, was *not* a re-construction of Stirling's Motor Construction Company, Limited, whose works they had secured at less than one-third of the original cost. The drawings, patterns, and plans acquired in the purchased assets, and on which no value was placed, had already been consigned to the scrap-heap. The present company had now started on its career commercially and productively as an entirely fresh industrial concern.

Dealing briefly with the prospects and policy to be pursued, and the manufactures to be carried out at Granton, the chairman said that the present demand for reliable motor omnibuses was far in excess of the supply. So far, little British capital had been turned to account to meet the demand, and the foreigners, being first in the field, had, and were still reaping a fruitful harvest. Judging by the success of several prominent builders of pleasure vehicles, and the popularity of their productions, the "Britisher" was quite as far

LAND AND WATER.—A pair of Christmas greeting cards. That on the left, from the well-known motorist, Mr. Roger H. Fuller, on "My First Motor, 1898," brings back memories of the past and suggests contrasts with present designs. The breezy right-hand picture of the motor boat, "Quicksilver," comes from Mr. James A. Smith, M.I.N.A.

advanced as the foreigner in motor construction, and the cry "All British" was justly and rapidly gaining ground.

"The Granton" chassis now nearing completion, and which would be ready for the market early in the new year would be "All British" and "Best British." Mr. Clingoe, and Mr. Drake, formerly works manager to the Daimler Company, and now acting in a similar capacity at Granton, had given the design much careful study, and were responsible for its production. Standardization of parts would be a prominent feature in the manufacture.

They were already besieged with inquiries from buyers on all sides, but until the first chassis had been subjected to every test and proved itself equal to the standard claimed, they had refused to negotiate sales. Early in the New Year they would, when ready, know where to market the Company's output.

The repairing of motors of all kinds was also a branch which would be developed, and two large shops had been fitted out to undertake the work.

NEW COMPANIES REGISTERED.

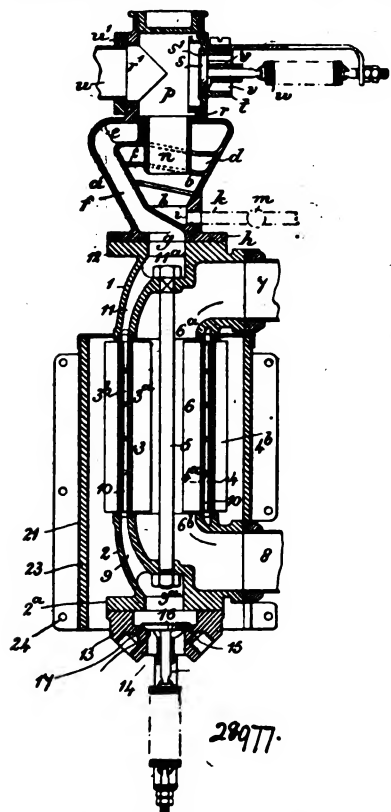
Austin Motor Company (Limited), Longbridge Works, Longbridge, The Lickey, Worcestershire.—Capital, £50,000 in £1 shares. First directors, H. Austin and F. Kayser.

Dart Motor 'Bus Company (Limited).—Capital £100 in £1 shares.

BRITISH PATENT SPECIFICATIONS. Selected and Abridged by James D. Roots, M.L.Mech.E. Thanet House, Temple Bar, London.

The first date given is the date of application ; the second, at the end, the date of the advertisement of the acceptance of the complete specification .

28977. 30th October, 1904. Improvements in and relating to Oil Separators and Vaporisers for use with Oil Engines. Tom Thornycroft and John I. Thornycroft and Co., Limited, Church Wharf, Chis-



wick. This invention has for its object to effect more or less complete separation of particles of heavy oil and tarry matter from a mixture of vaporised heavy oil and air whilst on its way from an oil vaporiser to the cylinder of an internal combustion engine, and also to provide an improved construction of oil vaporiser. There is one figure, a central vertical section. The separator comprises a casing, *a*, that is approximately of inverted truncated conical shape externally, and has a similarly shaped internal chamber, *b*, provided with an inwardly-extending spiral or screw-like rib, *c*, between the convolutions of which is a groove, *d*, of decreasing diameter. The spiral passage, *c*, is connected at *e*, to the end

Deal, Dover, and Folkestone Motor Omnibus Company (Limited).—Capital, £5,000 in £1 shares.

Q.C.E.D.A. Syndicate (Limited).—Capital, £60 in £1 shares. Object, to acquire patents relating to quick-charging and efficient-discharging accumulators.

Standard Gas Engine Company (Limited), 9, Chapel Street, Preston.—Capital, £10,000 in £1 shares. Object, to acquire the business of engineers, internal combustion engine makers, &c., carried on by O. Sumner and J. L. Leyland at Marsh Lane, Preston, Lancashire, as the Standard Oil Engine Company. First directors, O. Sumner, J. L. Leyland, R. E. Smalley, W. H. Woods, T. H. Clarke, N. Miller, W. Worden, and J. Clarke.

Standard Motor Agency (London) (Limited).—Capital, £100 in 1s. shares.

W. L. Thompson (Limited), 83, Anlaby Road, Kingston-upon-Hull.—Capital, £500 in £1 shares. Object, to acquire the business of W. L. Thompson, 83, Anlaby Road, Hull, manufacturers of cycles, velocipedes, and motor cycles. First directors, W. L. Thompson, H. E. Bowen, and Mrs. E. A. Thompson.

Henry Whitlock (Limited).—Capital, £6,625 in £1 shares. Object, to acquire the business carried on at 14, Leonard Place, Kensington, W., as Henry Whitlock, Limited, of coach, carriage, motor car, and cab builders, &c. First directors, H. F. Gidden and R. J. Harrison.

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tive force of the spring upon the valve will always be such as to ensure the closing of the valve with the required quickness when the suction ceases. The extent of opening of the valve is limited by the shoulder of the cap, *b*, of the valve stem, *C*, coming against a pad, *c*, at the outer end of the guide, *d*. The inner ends of the levers, *A*, are shown as fulcrumed between lugs, *e*, which project from a ring, *E*. This ring fits around the guide, *d*, and butts against a shoulder, *d'*, and is held by a ring, *f*.—December, 6th, 1905.

Patent Specifications Published.

Applied for in 1904.

Published December 28th, 1905.

- 19,169. S. S. STITT and G. C. LUFF. Anti-dust device.
- 23,602. G. L. C. RIVIERRE. Two speed free-wheel motor cycle hubs.
- 26,153. H. P. SAUNDERSON. Tractors.
- 26,494. F. MITCHELL and P. J. JOB. Variable speed gears.
- 26,961. R. N. SHARP and others. Carburettors.
- 27,031. J. B. KING. Variable speed gear.
- 28,045. H. A. STUART. Intl. combn. engines.
- 29,530. G. ABATI. Springs.

Applied for in 1905.

Published December 28th, 1905.

- 2,171. A. J. JUNG. Explosion motors.
- 2,642. P. W. NOBLE. Change-speed-gear.
- 2,819. P. W. NOBLE. Clutches and brakes.
- 4,093. J. JOHNSTON and H. W. BUDDICOM. Change-speed-gear.
- 6,919. E. W. LEWIS. Carburettors.
- 9,972. J. C. WOOD. Glass screens and windows.
- 12,479. HUTCHINSON. Lamps.
- 16,567. C. DELP. Automobiles.
- 16,800. F. A. HASSELWANDER. Intl. combn. engines.
- 20,680. E. H. HILL. Tools for removing valves.
- 21,669. L. WELFRINGER. Attachment for horns.

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